

# Railway Age

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SIXTY-FIFTH YEAR

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# EDITORIAL

## Railway Age

(Table of Contents Will Be Found on Page 5 of the Advertising Section)

Effective January 1, 1920, Class I railroads are required to make an arbitrary assignment of all operating expenses which pertain to freight and passenger service to one or the other of these services. Heretofore, only such expenses as were directly assignable were required to be so assigned. The

### Allocation of Operating Expenses

whole trend of the Commission's system of accounts has been towards rules which would make available the cost of moving a ton one mile and the cost of moving a passenger one mile. The present order is the necessary final step toward that goal. Many railroad accounting officers have steadfastly and conscientiously opposed this step on the grounds that it is based on an arbitrary assumption and is not therefore a legitimate function of sound accounting. Theoretically the objection can be sustained, but practically it is a question as to whether the arbitrary allocation of expenses cannot be made to serve some useful purpose. The separation of maintenance of way expenses which presents the chief difficulties is in general based on the cost of coal consumed in the two classes of service. The detailed rules prescribed may be reserved for further discussion, but the fuel basis of division appears to be as logical as any method so far suggested. Railroad operation, service and management will be the subjects of popular and political discussion for some time to come. A logical attempt at separating the expenses of freight and passenger service should be of value as material in this discussion.

The *Railway Age* presents on another page of this issue the first of a series of articles on the railways of Latin America,

### The Railways of Cuba

written by John P. Risque, a representative of the editorial staff of this paper, who is now traveling through South America for that purpose. The article in question, entitled "Cuba's Main Line Railways Are Well Developed," although the first written on the trip, is not the first Mr. Risque has written for the paper, for it follows the article entitled "Cuba's Sugar Cane Railways a Large Market," which was written before Mr. Risque left New York, and which appeared in three parts in the delayed issues of the *Railway Age* of October 17, 24 and 31, respectively. Mr. Risque has been in American railway service, and was at one time employed on the Mexican Central. Later he served as mechanical engineer of the United Railways of Havana and more recently in the railway department of the Cuban American Sugar Company, so that his fitness for observing railway conditions in Latin America will readily be realized. In the present series of articles, which eventually will have covered all the important railway systems of Central and South America, he will afford the readers of the *Railway Age* an opportunity to get an idea of these railways such as can only be obtained by the "man on the ground" who observes conditions from a practical and American point of view. The difficulty of securing information on the railways of a foreign country, particularly insofar as it concerns the details the supply man must have, is that it must usually be gleaned from statistics or from descriptions almost always written from a theoretical angle or by a man who writes for popular interest

only. Frank Rhea's two reports on the markets for American railway supplies in Australia and the Far East, written for the Bureau of Foreign and Domestic Commerce, are, of course, notable exceptions. Mr. Risque's previous article on Cuba's cane railways, as well as the present article on Cuba's main line railways, show that he will be able to observe with a practical viewpoint and get out of his trip that detailed information which otherwise would be almost unobtainable. The *Railway Age* feels sure that his articles will be read with no small amount of interest, and hope that they will prove of real service to the readers of the paper, particularly to those who are making plans to cultivate the large market for railway supplies which Latin America presents.

Before and immediately after government control of railroads was adopted, claims were advanced regarding enormous sav-

### Savings by Short-Routing Freight

ings which could and would be made under unified operations by moving freight traffic over the shortest available routes. There had been great waste under competitive private operation, it was alleged, because it had resulted in large amounts of traffic being handled by round-about routes. Even after government operation was adopted the Railroad Administration gave out alluring statements regarding the amount of freight which had been sent over shorter routes than would have been used under private operation, and the millions of dollars that had been saved.

The *Railway Age* expressed skepticism regarding the results which would be obtained by this "short-routing" campaign, because it was our impression that the amount of unnecessary roundabout routing was greatly exaggerated. What were the actual results of the short-routing campaign? The best test is the effect produced upon the average haul per ton of all the freight carried in 1918. The statistics of the Interstate Commerce Commission disclose that the average haul per ton in 1918 was the longest ever known, being 175.54 miles, as compared with 173.77 miles in 1917. Under unified operation and the "short-routing" campaign the average haul per ton actually increased. Of course, this was not due to unified operation. It was due to the economic laws which for some years have been causing the average haul to increase, and on the operation of which the Railroad Administration exerted no perceptible influence. When it is shown that the average haul actually increased it is necessarily shown that the large savings which have been claimed for short routing have been imaginary, or so small as to be not worth considering. Thus is punctured another of the many bubbles which the advocates of government ownership and operation have blown.

The fact that the average haul per ton increased, not only in spite of unified operation, but in spite of the largest advance in freight rates ever made, also shows that the advance in rates had no perceptible effect upon the movement of traffic. Some persons now argue that no further advance in rates should be made, because it would restrict the movement of traffic, and even make it impossible for some kinds of traffic to move. In view of the fact that the average haul increased in 1918 in spite of the advances in freight rates,

such arguments cannot be given much weight. The effect of an advance in freight rates upon the movement of commodities depends largely upon the relationship of the amount of the rates charged to the value of the commodities. Since the average value of commodities of all kinds has increased at least three times as much in proportion in the last five years as the freight rates charged, it follows that a still further and large advance in rates could be made without affecting the movement of commodities.

### One Reason for Intensive Development

FOLLOWING THE PASSAGE of the Adamson bill in 1916, the railroads were forced to submit to a virtual increase in the hourly rates paid to engine and train crews in freight train operation, and as a consequence there was a definite incentive to undertake such changes in operating arrangements as would tend to speed up the movement of traffic. But, while there was a disposition to do this under the influence of that insidious piece of legislation, there is now a positive necessity for it under the operation of Supplements 24 and 25 to General Order No. 27, of the Railroad Administration, granting time and one-half for overtime to train and enginemen in all classes of freight and transfer service. Attention has been called to this most emphatically by R. H. Aishton, regional director of the Northwestern region, in Circular No. 95, published elsewhere in this issue, and in which he proposes a number of practical rules for the operation of trains, organization of the personnel and improvement of facilities tending to expedite train movement. Mr. Aishton is president of the American Railroad Association, and one of the ablest railroad operating men in the United States, and therefore his instruction on this subject merit special study.

Special attention is directed to the recommendation covering additions and improvements to the physical property that would tend to overcome delays such as those incurred in the movement of engines in and out of engine terminals, the delivery of engines to their trains, the charging and testing of train air brakes, the making-up of solid through trains, the meeting and passing of trains on the line, the dispatching of trains out of yards and the clearing of the main line by trains when arriving at terminals.

This list and the suggestions for improving conditions are worth careful study and their tentative application to the conditions at any given terminal or engine district is certain to show opportunities for extensive improvements, to be made solely to reduce delays or dead time in train movement. Probably, chief among these would be projects for new passing tracks and extensions of existing ones, extensions to yard tracks and the construction of approach leads to yards. While such improvements do not appear very large when considered from the standpoint of the individual instance, when contemplated in the aggregate they assume formidable proportions. At the same time it must be remembered that these additions to facilities concern only such as will expedite the departure and arrival of trains at terminals and reduce the interference of trains with each other on the line. None of these suggestions covers considerations relating to the economical and expeditious operation of the yard itself. In other words, a careful study of any single phase of the relation of effective conduct of transportation to existing facilities is sure to demonstrate very quickly how great the need for the intensive development of the railroad plant.

One of the most important recommendations made by Mr. Aishton is that in reference to the employment of more trainmasters for the purpose of increased supervision. The study of methods for preventing unnecessary delays to trains

and the enforcement of the rules adopted for this purpose, will require the work of additional operating officers, and they should be men of initiative and ability of a high order.

### The Automatic Train

#### Control Committee Report

THE REPORT of the Automatic Train Control Committee submitted to W. T. Tyler, director of the Division of Operation, United States Railroad Administration, and abstracted elsewhere in this issue is deserving of careful study by all operating officers. Automatic train control has been advocated by the press and public for a number of years, the agitation being received after the recurrence of each bad collision. However, the need for some device of this character is gradually being recognized by railroad officers and the last year has perhaps witnessed a greater change in sentiment on this subject than any previous year.

As had been advocated editorially in the *Railway Age* in the past, any form of automatic train control should be considered as an adjunct to the block signal system. If it was possible to compel obedience to signal indications or were they always seen and observed, the necessity for automatic train control would not exist, since it may well be called the connecting link between the signal system and the train. But when accidents, such as those at Mount Union, Ivanhoe and South Byron occur on roads which are protected by up-to-date block signal systems, the necessity for some device to act when the engineman fails seems to become apparent. This condition is recognized in the conclusion reached by the committee in which it says, "That on lines of heavy traffic, fully equipped with automatic block signals, the use of train control devices is desirable."

The committee may well be congratulated upon the thoroughness and completeness with which it went into this subject. The committee states that "The installation of automatic train control appears feasible \* \* \* to protect trains moving with the established direction of traffic on main tracks, but it is doubtful if a device can be developed to protect all movements in the large terminals without restricting train movements to a prohibitive degree. The necessity for automatic train control must be developed in each individual case." However, the majority of accidents have occurred to trains moving with the "established direction of traffic" and at points outside of the large terminal districts where the trains must of necessity be more or less under control.

As the committee states, automatic or manual block signals, as the conditions may warrant, should be installed on lines before installations of automatic train control are made. It is a logical conclusion that automatic train control should first be installed on those roads which are at present completely signaled and that such installations should later be extended as conditions may warrant. The success of such a system can only be established after tests have been conducted upon a large enough scale and under all weather conditions to demonstrate its feasibility thoroughly and to allow for proper development to take place. This, as in the case with the automatic signal system, cannot be accomplished in a day. At first such installations should not be made in congested districts, but in the open country and from the studies made from the efficiency tests at such points systems may be developed to meet the more severe conditions of operation in terminal territory. It is to be hoped that the near future will see trial installations made by progressive railway managements on such lines as are at present completely block signaled, and that a permanent committee may be appointed to function during



the remaining period of federal control and afterward as a part of the American Railroad Association, as this is one of the important matters before the railroad managements today.

## The Division of Surplus Earnings

IT HAS BECOME universally recognized by students of the railroad problem that the most important question to be settled in the solution of that problem is the question of what rule shall be applied in determining how entire schedules of rates shall be made. Formerly the most important question regarding rate regulation was that of unfair discriminations between shippers and communities. After fourteen years of regulation under the Hepburn act, the question of unfair discriminations has been so far settled that the problem of rate regulation has become chiefly that of how rates must be fixed in order to enable the railways to earn a net return no smaller and no larger than the public welfare requires that they shall be allowed to earn.

Out of this question of what net return the railways should in the public interest be allowed to earn, has risen the further question of whether, if the rates are made high enough to yield the railways as a whole a reasonable net return, and the result is to enable some railway companies to earn more than they seem actually to need, there shall be taken away from these individual railways part of their surplus earnings to be used either by the government for its own purposes or improve the transportation situation as a whole.

The Cummins bill provides that the railways for rate-making purposes shall be divided into groups. Each group shall be allowed to earn an average of  $5\frac{1}{2}$  per cent on the combined valuation of all the railways in the group, which may be increased to 6 per cent in the discretion of the Interstate Commerce Commission. If any individual railway earns more than 6 per cent in any year one-half of the excess between 6 and 7 per cent must be put into a general railroad contingent fund and one-half into a reserve fund maintained for the carrier itself. Of any excess earned above 7 per cent one-quarter must be paid into the carriers' reserve fund and three-quarters into the general railroad contingent fund. After an individual carrier has built its own reserve fund up to 5 per cent it must turn into the general railroad contingent fund two-thirds of all its earnings over 6 per cent and may use the remaining one-third for its own purposes. The general railroad contingent fund would be used to make loans to railways that could not raise money on their own credit or to buy equipment to be leased to carriers that could not buy equipment on their own credit.

Over these provisions of Section 6 of the Cummins bill there has arisen an interesting struggle. It is not a struggle between different classes. There are financiers, business men, shippers and railway executives who are opposed to these provisions, and there are financiers, business men, shippers and railway executives who are in favor of it.

The attitude of the railway executives is, of course, of special interest. It has been charged in the propaganda of the Plumb Plan League and other anti-railroad organizations all over the country, that the railway executives are trying to get enacted into law a provision that the railways must be allowed to earn an average of 6 per cent upon the book cost of road and equipment. This assertion is entirely incorrect. While all of the heads of the railroad corporations are in favor of legislation specifically requiring the regulating authorities to so regulate rates as to enable the railways to raise enough capital adequately to develop their facilities, a majority of them are opposed to any provision fixing the average return that the railways shall be allowed to earn either on their valuation, or property investment, or

capitalization. Furthermore, a majority of them are strongly opposed to any provisions such as those of the Cummins bill under which most of the surplus earnings of individual roads over 6 per cent would be taken from them and used for governmental or general transportation purposes. On the other hand, there is an energetic minority of railway executives who are in favor of some such provisions as those of the Cummins bill, although practically all of them agree that under the Cummins bill too large a part of the surplus earnings of the more prosperous railways would be taken from them.

Doubtless the public and many members of Congress have been puzzled by the widely different policies which have been advocated by the National Association of Railway Security Owners on the one side, and the Association of Railway Executives on the other, and by the differences of opinion which have risen even among the heads of the corporations, who represent primarily the stockholders, while, of course, the National Association of Security Owners represents primarily the bondholders. The differences of opinion between the railway executives are, however, easy to explain.

For various reasons the financial positions of the various railroad companies differ widely. There are some whose capitalizations and the ratio of whose expenses to their earnings are so low that, even when the railways as a whole have earned only between 4 and 5 per cent on the book cost of their road and equipment, these particular roads have earned in excess of 6 per cent on their capitalization or their book cost. While the provisions of the Cummins bill would increase the net operating income of the railways as a whole, it would substantially reduce the amount of net operating income which some of these more prosperous railways could retain and use for the development of their properties and the payment of interest and dividends. It is certainly not unnatural that the heads of these railroads should insist that their individual lines are entitled to earn all they can on rates which will yield the railways as a whole only an average reasonable return. It is logical for them to contend that rates which yield the railways as a whole only a reasonable average return must be reasonable rates, and that if a railway charges only reasonable rates it is entitled to keep all the net earnings it makes on those rates.

There is a second class of railways which are average railways, and which, if rates were so fixed as to yield an average of 6 per cent to all railways, would individually earn approximately 6 per cent. Most of the heads of these railroads are opposed to any division of surplus earnings because each of them hopes to be able to manage his property so efficiently and economically as at some time to make it earn more than 6 per cent, and if he makes it earn more he wants to use the surplus earnings to benefit the stockholders. There are, however, some managers of average railroads who are in favor of some plan dividing the surplus earnings, because they believe that if no such plan is adopted the large surplus earnings of the more prosperous roads will be used in future as they have been in the past as an argument against making rates as high as they should be for the railroads as a whole, that this argument will be effective, and that in consequence the average road will be denied opportunity in the future as it has been in the past to earn an average of even as much as 6 per cent.

There is a third class of roads which never in the past has been able to earn anywhere near 6 per cent, and would not in the future be able to earn that much even if the laws should provide for an average minimum return for all roads of 6, or even 7 or 8 per cent. They would be able to keep all of the increase in net earnings which would result to them from the advance in rates which would have to be made to enable the railways as a whole to earn an average of 6 per cent. Naturally, their managers regard a proposal to increase the average return earned by the railways as a

whole and then to take away a part of the surplus earnings of prosperous roads, in a very different way than that in which the heads of the prosperous roads regard it.

The line of division between the railway executives who are opposed to such a plan as that of the Cummins bill, and those who are in favor of it, does not fall exactly between the heads of the prosperous and the average roads, on the one side, and those of the poor roads, on the other. We think that the heads of all the railway corporations agree as a matter of principle that each individual road should be allowed to retain all the earnings that it can make on rates that are reasonable for the railways as a whole. There are many, however, who regard the question as one of expediency as well as of principle. While they recognize the soundness of this principle, they believe from past experience that unless the more prosperous lines are required to give up part of their surplus earnings the rates will never be made high enough to enable the railways as a whole to earn a reasonable average return, and that therefore, as a matter of expediency and in the interest of the railroad situation as a whole, some provision for the division of surplus earnings should be accepted. There are, however, not a few heads of poor roads who believe that the principle that the individual railway company should be allowed to keep all it can earn on reasonable rates is sound, and therefore should not be abandoned because it may establish a precedent for the abandonment of other sound principles respecting the ownership and management of private property.

There are numerous members of Congress who have devoted great study to the railroad problem and who are sincerely anxious to frame and secure the passage of legislation which will solve it in a way that will be equitable to all concerned, and to the best interest of the nation. The disagreements which have arisen among business men and railway officers have made the work of these public men extremely difficult. The difficulty is heightened by the fact that organized labor, as a part of its propaganda against private ownership, is strongly opposing any legislation intended to increase the average return earned by the railway companies.

In these circumstances, what is Congress to do? Congress, after having received all the information and facts which the experts can give it, should go back to first principles and consider what kind of legislation is most likely to promote the welfare of the American public. Now, the welfare of the American public is not dependent upon the prosperity and development of any individual railroad, whether rich or poor. It is dependent upon the development and prosperity of our railway system as a whole. From a transportation standpoint, the main thing which the public welfare demands is that a great expansion of railroad facilities shall be begun as soon as practicable, and that each railroad shall be managed with the maximum practicable efficiency in order that transportation facilities generally shall be increased, the net operating income of the railways as a whole must be so increased as to enable practically every railroad in the country to raise more new capital than it has been able to raise for years. In order to insure that each individual railroad shall be operated with the maximum practicable efficiency legislation and regulation must be such that every increase in efficiency on an individual road will increase in a substantial measure the net return earned and kept by the company that owns that road.

Now the enlargement of the country's transportation facilities must be made in future principally by the more prosperous companies, and it should be made by them chiefly by the issuance of stocks. The provisions of the Cummins bill so sharply restrict the amount of surplus earnings over 6 per cent that the prosperous roads would be allowed to keep that undoubtedly they would prevent these roads from selling at reasonable prices the large amounts of stock which

they should issue within the next few years. Furthermore, they would greatly reduce the incentives to the most efficient operation of the more prosperous roads. The *Railway Age* believes that the best provision which could be adopted would be one which would require that the railways as a whole should be allowed to earn a minimum average of 6 per cent, and that none of the surplus earnings of any railway company should be taken from it. Surely under present railroad and financial conditions an average return of 6 per cent for all the railroads in the country would not be excessive. If, however, Congress should decide that the Interstate Commerce Commission, without instructions to that effect, would not allow the railways to earn an average of 6 per cent if the strong roads were to be allowed to retain all their surplus earnings, then probably it should provide for an average minimum return of 6 per cent, and for some taxation of the surplus earnings of the prosperous roads which would allow them to retain a larger part of their surplus earnings than the Cummins bill would allow. It certainly does not seem that any earnings less than 7 per cent should be taken away at all, and surely each company should be allowed to retain at least one-half of its surplus earnings in excess of that amount. Unless the more prosperous roads are to be treated more liberally than they are in the Cummins bill it would be better for Congress not to mention any specific percentages of return in the new legislation, but merely to require the regulating authorities to make the rates as a whole high enough to enable the railways as a whole to provide good and adequate service.

The whole issue is being beclouded by discussions of what the railroads are "entitled to." The vital question is not what the railroads are entitled to, but what the public is entitled to. The main thing which the public is entitled to under either government or private operation is good and adequate service, economically rendered. The railroad companies individually and collectively are not entitled to earn any larger return than they must have in order to render good, adequate and economical service. The public welfare demands that the railways individually and collectively shall be allowed to earn whatever return is necessary to enable them to render such service, and it should be borne in mind in this connection that the difference between what it will cost the public in freight and passenger rates if the railways are allowed, or not allowed, to earn an adequate return will be relatively very small. The gross earnings of the railways must in any event, if the companies are to be saved from insolvency, exceed \$5,000,000,000 a year. The difference between what it would cost the public to let them earn an average of 5 per cent or an average of 6 per cent would be not more than \$200,000,000 a year, or not more than 4 per cent of the gross earnings that they must be allowed to make in any event. If the provisions of the Cummins bill should be adopted the amount of surplus earnings which would be taken from the prosperous roads would be extremely important from the standpoint of these individual roads, but would be almost infinitesimal compared with the total amount the public must pay for transportation in any event if it is to get good and adequate service. The important thing, therefore, for Congress to decide, and the only thing of real importance for it to decide, is under what policy the railways as a whole are most likely to be enabled to provide the service which the public welfare requires.

At Prince Crossing, near Elgin, Ill., on the night of the second of January, a passenger train of the Aurora, Elgin & Chicago, consisting of a single electric motor coach, was derailed by striking a freight car which had fallen from the track of the Chicago Great Western crossing above the electric line at this point, and the motorman and one passenger were killed. Eight passengers were injured.





*View of the Train-Sheds and Viaduct Approach to the Central Station. Havana Terminal Freight Yards, Warehouses and Bay on the left (City of Havana)*

## Cuba's Main Line Railways Are Well Developed

Conditions in Our Nearest "Foreign" Market as Studied by  
Railway Age Representative

By John P. Risque\*

### Part I

THE CUBANS, being good advertisers, display their oldest locomotive where "he who runs" may read. Instead of hiding it in a museum somewhere, they have put the oddly designed and fastidiously decorated old 4-2-2 of the Matanzas Railroad of 1843 in the east end of the train shed of the Union Station in Havana and within a hundred feet of the tracks over which 200 arrive and depart each day. That the attractions of this queer old timer's lines are not wasted, is evidenced by the keen interest displayed in the old engine at all times of the day, by travelers.

To the old sugar planter, whose father witnessed the arrival of this wonderful machine and its successors which have moved his cane crop faithfully from year to year, the exhibit on the platform is admired from the tip of its harmless pilot to the strange hook on the rear of the little four-wheeled tender. To him it is a pleasant reminder that Cuba started railroading fully eleven years ahead of the mother country, Spain. For, in 1834, by royal decree, an order was issued, authorizing the Department of Agriculture and Commerce of the Island of Cuba, to construct a railroad from Havana to Guines, a distance of 48 miles. In November, 1837, the line was ready for business and was operated by the government for five years; after which it was sold to private interests. Thus we have, an example of one of the oldest ventures in the operation of a railway under government control, ending eventually in private ownership, the details of the transfer of which and the reasons therefor would probably be interesting reading. Since the period of this sale additions, extensions,

changes, betterments and consolidations of early lines into groups under one management, have attempted to keep pace with the remarkable industrial and agricultural growth of the island—and not without some success.

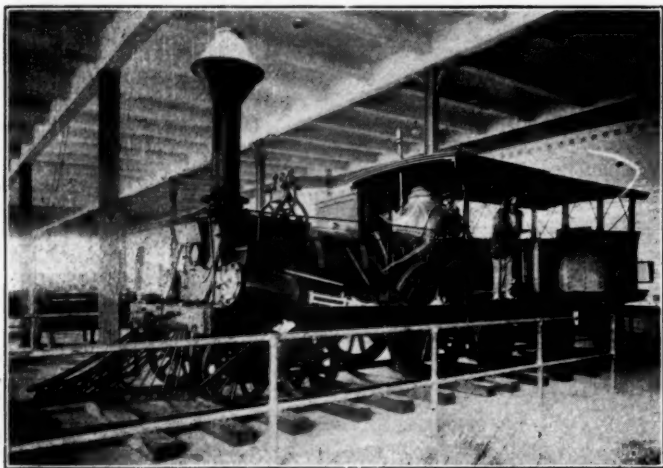
When the tourist to Havana from the United States becomes weary of the novel sights and excitements of perhaps the most "foreign" city he ever saw, he frequently retraces his steps to the dock where he landed, boards the ship and starts for home. His story to the folks back home will probably be full of the amazements of the largest city in Cuba and one of the quaintest in the world. But, due to lack of interest or through possible misinformation concerning travel, the average visitor learns little of one of the principal factors which made Havana great and is continuing to help to make her greater and richer. This factor is the railroad system of the island.

The reader who is interested and who plans to take a trip to Cuba "some day" should make a note of the fact that there is an active passenger agent on the Prado—and quite likely near the hotel—whose business it is to see that visitors are comfortably provided for in their trips to the country. He has all of the necessary information as to schedules, expense and accommodations. If the trip is going to be over night, he can provide reservations in comfortable Pullman cars as far as the traveler wants to go. And there will be no extra charge for electric lights in the berths.

In pleasant contrast to the excitement of the crowded city, the open country, with its tall coconuts and royal palms, affords a change and a rest. Life at the way stations along the line provides an angle of observation of human nature not presented in the city. And if the tourist happens to be a railroad man he will find much to interest him. He will not fail to observe the presence of a large number of freight

\*This is the first of a series of articles on the railways of Latin America which Mr. Risque is writing "on the ground" from his observations on a trip he is now making as a member of the editorial staff of the *Railway Age*. Mr. Risque was formerly employed on one of the sugar cane railways of Cuba and his description of the cane railways has already appeared in his article written before he started on his trip, entitled "Cuba's Sugar Cane Railways a Large Market," which appeared in three parts in the issues of the *Railway Age* of October 17, 24 and 31, respectively.

cars from home; box, flat and gondola cars of all descriptions. If he chooses to make a list of the various cars from the states which he found in trains en route in both directions, on sidings at stations and at sugar mills, his list would be quite representative. If he had never been to Cuba before and was not advised how these cars got on the island, he might possibly surmise that on account of the acute shortage of cars on the Cuban lines Uncle Sam had been generous

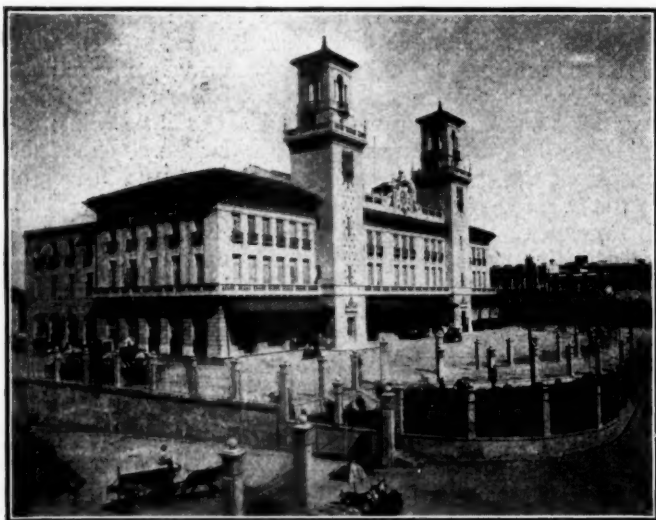


Cuba's First Locomotive and the Engineer at Havana Central Station

enough to ship some in by boat to help out. The facts in the case, however, show that all these cars, which seem to enjoy the climate if the length of their stay is any evidence, came to Cuba on their own wheels.

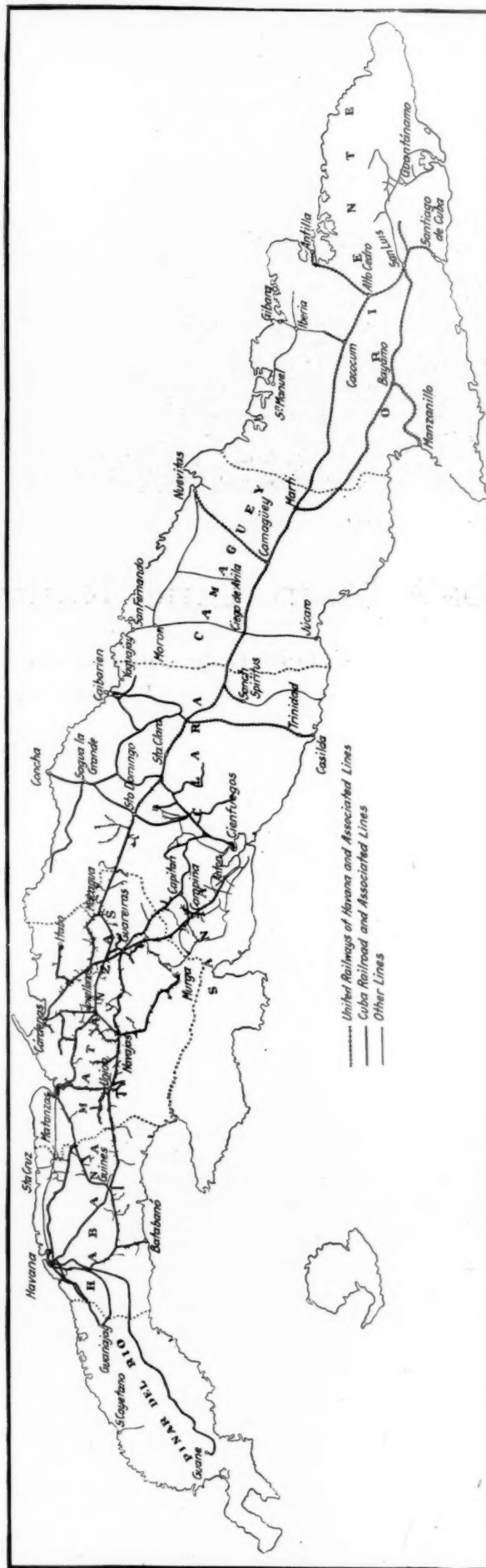
#### The Car Ferry Line to Cuba

In January, 1915, the Florida East Coast put the car ferry steamer "Henry M. Flagler" into service between Key West, Fla., and the port of Havana, 90 miles south. This ship has a length of 386 feet and a beam of 58 feet, has four



Central Station, Havana

tracks and carries 30 standard freight cars and makes a round trip between the two ports every day except Sunday. At Key West a slip is provided for the transfer, by track, of cars direct to the boat. A similar slip, operated by the Havana Terminal Company in Havana, unloads the cars for delivery in Havana or for transfer to any part of the island. The initial development of this business was rather



The Main Line Railways of Cuba



slow. Its introduction was an immediate challenge to a decade of tradition which had become accustomed to receiving freight by steamer, with all of the multiplied handling and piling on the wharf and reloading to railway cars which imports by steamer invariably involve. Finally, however, the merchants—and particularly the sugar mills—began to



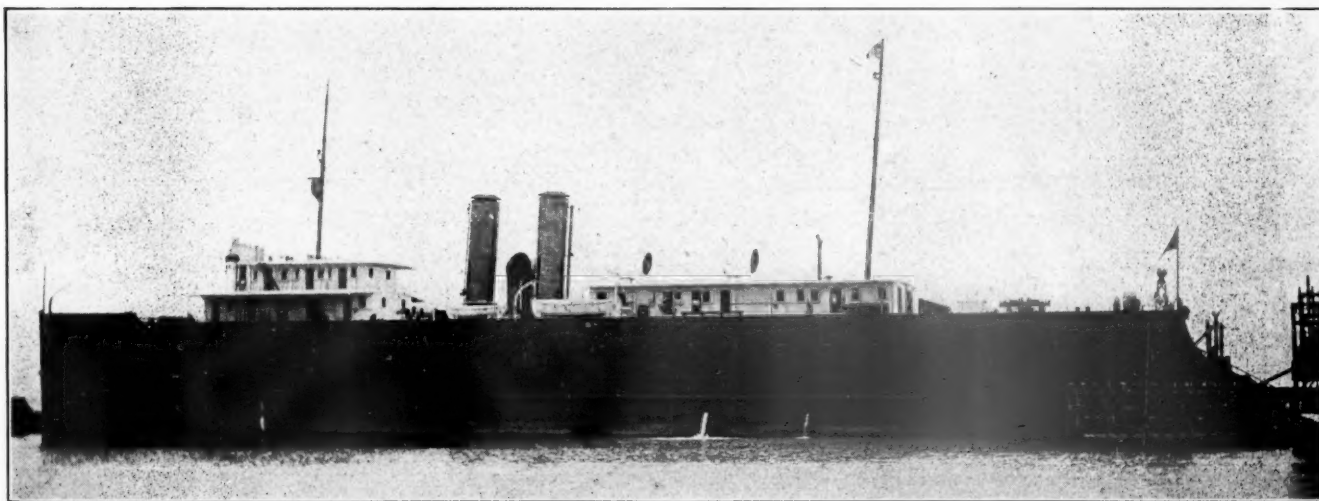
The Electric Line to Guines from Havana

realize what the new way meant to them, and it was soon found necessary to put on another boat. In the fall of 1916 the "Joseph R. Parrott," a sister ship to the Flagler, was added to the run. At the present writing this unique and ably managed rail link between the United States and Cuba is considerably overtaxed, and a third ship, similar to its

from the factory to the remotest plantation. Upon arrival the matter of preparation for running is a trifle. As most of the locomotives brought in here arrive "just in the nick of time" or six weeks late, depending upon the time they were ordered, the ferry has come to be known as a life-saver in many instances. Locomotives shipped via steamer come in endless boxes and crates, all of which are handled many times and finally arrive—frequently with all of the parts and sometimes not—at destination, where setting up is in order. Cars brought in on the ferry are "piled up." In a shipment of 15 cars, for instance, six cars may be on their own wheels and carrying the frames, trucks and bodies of the remaining nine. Machinery outfits of all kinds are loaded at the United States factory on the same cars, which are backed into the mill door for unloading.

The introduction of this service brought the California and Colorado cantaloupe to the Cuban's table. It also brings him plenty of grapes, both of which fruits were a luxury prior to the development of the ferry's service, on account of the limitations of refrigerator space on steamers and the almost prohibitive rates collected for its use. Fresh meats, butter and cheese from the middle west, cabbages, peaches and apples from eastern territory—in fact, products from the various sections of the United States—are handled as the seasons develop and brought into Cuba in as good condition via refrigerator cars as they are delivered to our own cities.

The development of business from Cuba to the United States has also participated in the success of the enterprise. Cuban winter vegetables are regularly shipped north in cars that are initially refrigerated at the icing station in Havana, sent to the fields, loaded and re-iced in re-passing through Havana. The pineapple industry, which, previous to the establishment of the car transport service, was in a languishing and dying condition owing to the necessity of many handlings when sent via steamer, which caused bruising and consequent decaying of the fruit. Shipments of this fruit via refrigerator cars from the fields to the markets of the



Steamer Joseph R. Parrott of the Florida East Coast R. R. Car Ferry Between Key West and Havana

predecessors, is now under construction and is expected to arrive for duty about July 1, 1920. Nor is it expected by the officers of the company that this will take care of the business. It is predicted that six of these boats will eventually be kept busy on this run. Under arrangements with the government of Cuba, bond is given for the exportation of the cars and no duty is assessed thereon.

An example of the economy offered by the ferry service is that of the shipment of locomotives from the builders in the United States to the public and private railroads of Cuba. These engines come in on their own wheels—all the way

United States have brought the annual shipments up from 600,000 crates to 1,500,000 crates in less than six years.

#### The United Railways of Havana

Although to the average newcomer to Cuba who, starting out for a trip through the island from the Central Station in Havana, the railway map indicates no division of ownership, the lines are comprised of many different systems. Unless he happens to be a railroad man he will be unable to detect any difference in the equipment of the lines as he passes from one to the other.

Broadly speaking, the main lines of Cuba are made up of two groups—the Western and the Eastern. The Western systems are a combination of lines under English control and operation and the Eastern roads are American. The Western lines comprise the United Railways of Havana, whose rails traverse the provinces of Havana, Matanzas and Santa Clara as far east as the city by that name. The Western Railway of Havana, under direction of the United group, runs west from Havana to a point called Guane, near the western terminus of the island in the Province of Pinar del Rio—the point of origin of a majority of the tobacco and pineapple traffic of the island and a producer of livestock and vegetables. Another subsidiary of the United Railways is the Havana Central Railroad, which started out in 1902 as an American organization and was taken into the United combination in 1907. This line, electrified, runs from Guanajay to Havana, a distance of about 30 miles, and also operates a line to Guines and Providencia, about 35 miles. Six miles of street car line are under this company's control in Guanabacoa, an Havana suburb. The principal traffic of this line is melons and vegetables, as well as some tobacco and pineapples. A modern wharf, called the Paula Dock,

as the Muelle de Luz, and the suburbs of Casa Blanca, Regla and Fesser, the locations of dry docks, small repair plants for ships and machine shops, respectively, as well as growing residential districts across the bay.

### The Cuba Railroad

The principal eastern line of the island is an American system, known as the Cuba Railroad, frequently mistaken for an extension of the Western system just described. The Cuba Railroad's tracks start from Santa Clara in the province by that name and run through to Santiago de Cuba on the extreme southeastern end of the island. It traverses three of the largest (and most undeveloped) provinces, namely, Santa Clara, Camaguey and Oriente. This territory comprises over 70 per cent of the total area of the country, but its population is only half of the total on the island. In 1916 the Cuba Railroad took over the Camaguey & Nuevitas Railroad, which runs between the two points named, since which time the newly acquired branch has been extended to the port of Pastelillo, where the new owners constructed port and docks at a cost of \$1,500,000. In March, 1919, the company completed the Trinidad branch between



Havana Cienfuegos Express, Showing English Design of Superheater 4-4-0 Type and Characteristic Track on the Central Railways of Havana.

is a part of this line's equipment and accommodates the largest steamers. The Marianao Railway, a suburban electric line, is operated by the United Railways and runs from Havana west to the Beaches, about 10 miles. The last unit in the United combination comprises the Cuban Central Railways, said to serve the richest agricultural zone in Cuba. This railroad system, prior to 1899, comprised several independent short lines, since which time they have been consolidated and operated as a unit. The system adequately serves the Province of Santa Clara, providing transportation to the east and west ends of the island by its connection with the main lines of the United and Cuban Railroad. The Cuban Central has terminals—important sugar export points—at three points, Cienfuegos on the south and Caibarien and Isabela de Sagegos on the north. It is said that with the exception of Matanzas, Cienfuegos is the most important sugar shipping point in Cuba, the Cuban Central Railways having constructed a thousand foot pier at that place in 1906. The United Railways of Havana operate five well-equipped passenger ferry boats on the Bay of Havana, running half hourly between the company's ferry piers, known

Fomentos and Casildas on the south coast through what is claimed to be some of the most difficult railroad construction country in Cuba. The cost of this new 40-mile line is said to have been in the neighborhood of \$4,000,000. The principal traffic of the Cuba Railroad constitutes the hauling of through shipments of merchandise and machinery originating on the United Railways, the transportation of cane along its lines to mills, and the delivery of sugar to the ports of Antilla on Nipe Bay on the north and to Santiago de Cuba on the south. Agricultural products in general, livestock and lumber also constitute a large part of the business done by this company.

ELECTRIC RAILWAY RECEIVERSHIPS during the year 1919 exceeded in number, mileage and capitalization those of any year since statistics have been compiled, states the Electric Railway Journal. The year 1919 saw 48 companies with a combined mileage of 3,781 and a total capitalization of \$534,174,458 in receivership. Only 28 companies with a combined mileage of 2,625 and a total capitalization of \$159,630,138 were sold at foreclosure during 1919.



# Automatic Train Control Committee Makes Report\*

## Outlines Studies Made and Points Out Need of Further Investigation of Sixteen Devices

**T**HE AUTOMATIC TRAIN CONTROL COMMITTEE, which was appointed by the Director General a year ago, has made its report to W. T. Tyler, director of the Division of Operations, United States Railroad Administration. The committee recommends that it be continued or a similar body appointed to carry on its work until the end of federal control. It recommends further, that the present provisions be extended to provide for a permanent staff, and that, following the termination of federal control, a special committee of the American Railroad Association be appointed, such a committee to have the same standing as a section of the A. R. A., and to include a representative of the Bureau of Safety of the Interstate Commerce Commission as a member. It was further recommended that this committee or section of the A. R. A. continue the work thus far conducted by the Automatic Train Control Committee, which was appointed by the director of the Division of Operation, United States Railroad Administration in accordance with Circular No. 25, dated January 14, 1919.

The instructions to the committee as given in the circular were as follows:

"The committee will proceed at once to make a study of, and report upon, the automatic train control devices now undergoing test upon various lines of railroad or available for test with their recommendations for the installation and further practical test of any devices now or during their investigation made available for that purpose, which they may consider practicable and reasonably conforming to the purposes to be accomplished.

"The report of the committee will include their recommendations upon the requisites of automatic train control and their conclusions upon the mechanical or economic features of such of the devices as the committee may find available for practical use."

The personnel of the committee at the time of its appointment consisted of C. A. Morse, chairman, who at the time was assistant director, Division of Operation, United States Railroad Administration; W. P. Borland, chief, Bureau of Safety, Interstate Commerce Commission; C. E. Denney, assistant federal manager, New York, Chicago & St. Louis; H. S. Balliet, assistant terminal manager, Grand Central Terminal, New York City; Henry Bartlett, chief mechanical engineer, Boston & Maine; J. H. Gumbes, general superintendent, Pennsylvania Railroad; R. W. Bell, general superintendent of motive power, Illinois Central.

On June 1, 1919, Mr. Morse resigned as assistant director and from the chairmanship of the committee, and A. M. Burt, his successor, as assistant director, was appointed in his stead.

### Outline of Work and General Considerations

The committee held its first meeting in Washington on January 23, 1919. Since that time 14 meetings of the full committee and 17 subcommittee meetings were held.

In order to enable the committee to become familiar with train control devices undergoing test it became necessary to arrange for inspections of such devices wherever tests were being conducted. To accomplish this end the committee made investigations and inspections of devices actually installed and operated, either as test installations or in actual service. Train control devices not undergoing road test but

in laboratory form and which were brought to the committee's attention were also examined. Thirty-seven devices in all were inspected, in addition to which plans and specifications of 300 train control devices were also examined by the committee.

The relation of automatic train control to operating conditions has been very fully discussed by the committee, and all the elements of the problem have been considered. The committee has been especially careful to give full consideration to all devices that have been brought to its attention. It has endeavored through its inspections, the consideration of plans received and its discussions to obtain a comprehensive knowledge of the state of the art as it exists in this country at present. The following definition and requisites for automatic train control were adopted by the committee:

Definition: Automatic Train Control: An installation so arranged that its operation will automatically result in either one or the other or both of the following conditions:

First: The application of the brakes until the train has been brought to a stop.

Second: The application of the brakes when the speed of the train exceeds a prescribed rate and continued until the speed has been reduced to a predetermined rate.

### REQUISITES FOR THE DESIGN AND CONSTRUCTION OF AUTOMATIC TRAIN CONTROL DEVICES

1. The apparatus so constructed as to operate in connection with a system of fixed block or inter-locking signals, and so inter-connected with the fixed signal system as to perform its intended functions—

(a) in the event of failure of the engineman to obey the fixed signal indications, and,

(b) so far as possible, when the fixed signal fails to indicate a condition requiring an application of the brakes.

2. The apparatus so constructed that it will perform its intended function if an essential part fails or is removed; or a break, cross, ground or failure of energy occurs in electric circuits, when used.

3. The apparatus so constructed as to make indications of the fixed signal depend upon the operation of the track element of the train control device.

4. The apparatus so constructed that proper operative relation between those parts along the roadway and those on the train will be assured under all conditions of speed, weather, wear, oscillation and shock.

5. The apparatus so constructed as to prevent the release of the brakes after automatic application, until the train has been brought to a stop, or its speed has been reduced to a predetermined rate or the obstruction or other condition that caused the brake application has been removed.

6. The train apparatus so constructed that, when operated, it will make an application of the brakes sufficient to stop the train or control its speed.

7. The apparatus so constructed as not to interfere with the application of the brakes by the engineman's brake valve or to impair the efficiency of the airbrake.

8. The apparatus so constructed that it may be applied so as to be operative when the engine is running forward or backward.

9. The apparatus so constructed that when two or more engines are coupled together or a pusher is used it can be made operative only on the engine from which the brakes are controlled.

10. The apparatus so constructed that it will operate under all weather conditions which permit train movements.

11. The apparatus so constructed as to conform to established clearances for equipment and structures.

12. The apparatus so constructed and installed that it will not constitute a source of danger to trainmen, other employees, or passengers.

In general the purpose of a block system is to provide a proper space interval between trains to protect against rear collisions in the assigned direction of traffic and against both rear and butting collisions on tracks signalled for movements in both directions. On roads where track circuit controlled block signals are installed it is evident that, if the rules are obeyed and the indications of the fixed signals along the roadway are at all times observed, understood and obeyed, accidents such as the the signal system is designed to prevent cannot occur, except in the unusual event of a signal failing to indicate an unsafe condition when such a condition exists.

Generally speaking, therefore, on tracks fully equipped with modern track circuit controlled block signals, train

\*Abstract of Automatic Train Control Committee report made to W. T. Tyler, director, division of Operation, United States Railroad Administration.

collisions can occur only as the result of the (1) failure of brakes; (2) failure of signals to perform their functions; (3) failure of employees to comply with rules or orders, or (4) failure of employees to observe, understand or obey signal indications.

Train control devices will not prevent collisions due to brake failures, which are infrequent and comprise only a small percentage of such accidents. Failure of signals to perform their proper functions is a comparatively rare occurrence.

Track circuit controlled block signal systems are so designed that when any part fails the signal should display the stop indication. In some cases of failure, however, the signal indicates proceed even though it should indicate caution or stop. Such failures, known as "false clear" failures, contain a serious element of danger, but their infrequency makes the possibility of collisions from this cause very remote.

Collisions due to failure of employees to comply with rules or orders constitute a large proportion of the total number reported, but many of these could not have been prevented by an automatic train control device. Automatic train control devices may be expected to prevent only such accidents as are due to the failure of employees to observe, understand and obey signal indications. Failure to see or understand signals may be due to smoke, fog, snow, absence of the night signal indications, complexity in the scheme of indication, unfamiliarity of the engineer with the route over which the train is running, the diversion of his attention or his physical incapacity, etc. Failure to obey signal indications that are seen and understood are rare and include only those cases where engineers in their anxiety to make time take chances, or where they use poor judgment in the interpretation of rules which permit them to exercise some discretion. Statistics show that most of the collisions which have occurred on tracks protected by track circuit controlled signals are due to the causes above enumerated.

There appears to be a popular misconception as to the number of fatalities that might be prevented by automatic

cent of the fatalities to non-trespassers on the railroads of the United States, and of this number many resulted from collisions occurring in yard tracks or at other places where they would not have been prevented by an automatic train control device.

The cost of an automatic train control system is an undetermined item which involves not only the original expense of installation, but also the cost of maintenance and the effect of its operation upon the capacity of existing facilities. If a device materially reduced the capacity of a railroad, its installation where heavy traffic is handled, might necessitate further expenditure for additional running tracks. A device to satisfactorily meet such conditions must therefore be one which will interfere as little as possible with the capacity of a railroad and this requirement may necessitate the addition of speed control apparatus at an increased cost for its installation and maintenance.

The question of installing automatic train control systems in such a manner that the normal operation of trains will not be interfered with is one of the most difficult problems to be solved. The primary function of a block signal system is to maintain a definite space interval between moving trains, but in addition thereto it enables trains to be moved safely without delay as, by giving an engineer information that the track ahead of his train is clear for a definite distance, he is enabled to proceed with confidence at the highest rate of speed which can be maintained with safety. Train movements are thus greatly facilitated, and this fact is so important and fundamental that, on multiple track roads of heavy traffic, it is recognized that to handle the volume of traffic now being moved would be impossible without the use of automatic block signals, unless additional running tracks were provided. Fundamentally, therefore, track circuit controlled automatic block signals, in addition to providing greater safety of train operation, add to the capacity of a railroad as do additional running tracks. In imposing automatic train control upon such a system this fact must be clearly borne in mind and in correcting unsafe conditions due to the

	Year ending June 30						6 months ending December 31, 1916		Year ending December 31			
	1914		1915		1916		No.	Per cent	1917		1918	
	No.	Per cent	No.	Per cent	No.	Per cent			No.	Per cent	No.	Per cent
Collisions .....	271	5.61	121	3.42	233	5.16	141	4.95	364	6.23	499	8.27
Derailments .....	262	5.42	180	5.08	194	4.29	91	3.18	176	3.01	290	4.81
Other train accidents .....	18	.38	21	.60	38	.84	18	.64	151	2.58	168	2.78
Train service accidents (including high-way crossing accidents) .....	3,871	80.13	2,872	81.20	3,566	78.95	2,355	82.54	4,633	79.28	4,485	74.37
Non-train service accidents (industrial, etc.) .....	409	8.46	343	9.70	486	10.76	248	8.69	520	8.90	589	9.77
Totals .....	4,831	100.00	3,537	100.00	4,517	100.00	2,853	100.00	5,844	100.00	6,031	100.00

NOTE.—On account of change in the ending of the fiscal year from June 30 to December 31, in 1916, the figures for the last six months of 1916 are shown separately.

train control devices. Statistics show that train collisions have been the cause of less than 6 per cent of the fatalities to persons, other than trespassers, occurring on the railroads of the United States in the five and one-half years ending December 31, 1918. Records of the Interstate Commerce Commission show the fatalities to non-trespassers on railroads of the United States from July 1, 1913, to December 31, 1918, inclusive, as indicated in the table.

The foregoing facts, however, should not be taken as minimizing the seriousness of the situation, and in considering them weight should be given to the further fact that many of the victims of train collisions are passengers who do not contribute by their negligence to the accidents and are entitled to the largest measure of protection that is reasonably possible; nevertheless, the limitations of automatic train control devices even the most complete and dependable that may be developed, should be clearly understood. All fatalities resulting from train collisions average per year from July 31, 1913, to December 31, 1918, inclusive, 296 or 5.6 per

failure of the human element the fundamental feature of the signal system itself, as above outlined, must not be unnecessarily impaired. There are other problems in connection with this subject, some of the most important being those of reliability, clearance and interchangeability.

### The Train Control Problem

Automatic train control is popularly regarded as a panacea for railroad accidents. Persons who are not familiar with railroad operating requirements generally fail to understand fully, the factors which must be taken into account in the practical use of train control devices. On this account a comprehensive statement of the questions involved from the standpoints of construction, maintenance and operation is desirable.

Briefly stated, the problem is to provide some appliance to furnish protection against accidents when employees disregard signal indications or, so far as possible, when signals improperly indicate proceed. The problem comprises two



main elements, one of which consists in reproducing upon a moving train, either by mechanical or electrical means, a correct indication of the condition of the track ahead; the other requires proper means for controlling the train in obedience to the indication given. The first element necessitates the use of suitable mechanism along the roadside, while the second requires the use of suitable mechanism installed upon the train, both of which must properly correlate and function interdependently. Important factors entering into the problem are:

- a. Reliability in operation.
- b. Inspection, maintenance and test to insure efficiency.
- c. Clearance: Relation between parts of the device and obstructions of the roadside or train.
- d. Capacity: The effect upon the traffic handled over a given section of railroad.
- e. Interchangeability as between different devices on track used by railroads jointly.
- f. Correlation with track circuit controlled block signaling and air brake apparatus.

It is obvious that an automatic train control device must be reliable in operation; that is, it must respond with certainty to all the conditions under which it should act, and should remain inert at all times when conditions are such that a train may proceed with safety. If the device fails to act when the danger it is designed to guard against is present, its intended function cannot be performed, and if it acts frequently when there is no danger, the interference with operation becomes serious and the device itself becomes discredited. The device must of necessity be exposed to all climatic conditions and must function properly during the most severe weather. It must also be protected from damage; the roadside mechanism from being torn out by objects dragging from passing trains, and the train carried mechanism from being struck by foreign obstacles on the roadside.

Proper inspection and maintenance of automatic train control devices will be more difficult than the inspection and maintenance of track circuit controlled signals, for the reason that part of the apparatus will be located on the roadside and another part upon the train. The roadside apparatus will naturally be looked after by the maintainers who keep the signals in order, while the apparatus carried on the train will be looked after by the mechanical forces in engine houses and shops. It will be a difficult matter to correlate the results of the divided inspection and maintenance so as to determine with certainty the cause of failures, and it will often be impracticable to bring the train apparatus and the roadside apparatus at a particular location into operative relation with one another for test purposes. The inspection and maintenance of the signal system itself will be increased by the use of an automatic train control device because certain elements will be added to the signal system.

The location of automatic train control apparatus on the train or on the roadside requires detailed study to secure satisfactory operation. Clearances are materially affected by tunnels, bridges, station platforms, track pans, grade and highway crossings, etc. Train control devices are of two general classes: (1) Those that depend for their operation on a physical contact of an element carried on the train with an element at a fixed location on the roadside. (2) Those that depend for their operation on an electrical or magnetic impulse without physical contact between the roadside and the train elements.

Many troublesome clearance problems enter into the application and use of the first class. If the roadside elements are located between the rails, they are likely to be torn out by objects dragging from moving trains. If the location be a short distance outside of the rail and near its level, snow plows and ballast spreaders which work to the level of the rails may be interfered with.

Part of the track element must be placed above the rail

level, because if the train element is below that level it would be torn off by coming in contact with switch rails, crossing planks and other obstructions. With the non-contact devices the clearance difficulties are materially reduced, and evidently this fact has been one of the leading causes for the development work that has been and is now being done with this class of devices.

If a device is to act to stop a train only in emergencies caused by the failure of employees to obey signal indications, the automatic brake application must be made a sufficient distance away from the actual point of danger to bring the train to a stop before reaching that point, under the most unfavorable conditions. This involves the necessity of providing maximum braking distance for all trains equal to that required for any train on the road. This cannot be done without decreasing the track capacity, and on congested roads is therefore a matter for serious consideration. To overcome these difficulties speed control apparatus is being developed.

The joint use of track by two or more roads is frequent. This practice, as well as the joint use of terminal facilities, has been extended during the past two years and will, without doubt, become more general. It is necessary, therefore, that train control devices shall be so designed that the engine equipment of the various roads will properly function with the roadside apparatus on tracks used jointly.

Due to the infrequency of detouring in case of accidents and because of the safeguards thrown around such movements, it would not appear necessary that the train control apparatus should be designed to be operative in all cases on the engine of the detouring road, but the equipment detoured must conform with the clearance requirements on the road used. It is therefore highly desirable, and in certain localities necessary, that a train control device for practical use shall not restrict the free operation of the trains of several roads over the same track.

It is essential that train control apparatus shall be so designed that it may be superimposed upon the electrically controlled block signal system and not interfere with the performance of the signals. It is also essential that the engine apparatus of automatic train control devices shall be adapted to use with the present air brake system and shall not interfere with its practical operation.

#### Plans and Devices Examined

The committee examined 37 devices in various stages of development. All types, except one, were represented, and these were distributed among the various types as follows:

Plain mechanical trip .....	1
Electrically controlled mechanical Trip.....	10
Intermittent electrical contact .....	15
Insulated truck with short track circuit section.....	1
Intermittent induction .....	3
Inert roadside element .....	1
Non-magnetic rail .....	1
Continuous electrical contact .....	..
Continuous induction .....	2
Wireless .....	1
Combined insulated engine and inert roadside element.....	1
Combined plain mechanical trip and intermittent induction.....	1

Of the above list, 14 possessed some speed control features as part of the device and 25 were without such features. Defects, classed as "open circuit," due either to the requirement of the application of energy to produce a brake application or to the possibility that essential parts might be removed or broken without producing a stop, existed in six devices.

Generally, the governors used in those devices exhibiting speed control features have been of the centrifugal ball type, driven from an axle of the engine by belts of various kinds or by rigid connections. The method of transmission is obviously an important part of such a device and presents difficulties, some of which are due to the limited space available for the location of the speed control apparatus. One device examined took into consideration, in its speed control

apparatus, the braking effect which would be produced by the engineman's handling of the train. Some purely electrical speed control apparatus has been examined, but none which has been subjected to any extensive tests. One device depended for its speed control on the impact between the engine contact element and the roadside contact element, as related to the speed of the train in reference to the rate of inclination of the roadside contact element to the track.

The use of amplifiers in the form of audions or plictrons, designed to increase or modify the electrical energy in the train apparatus by the influence of the roadside element in non-contact types, is indicated in three devices. In each of the devices the amplifier is used in a different manner, but they are all in the experimental stage, and no tests under operating conditions have been made.

Plans, more or less complete, of 300 devices have been examined in addition to the plans of those that were inspected. These were divided among the various types as follows:

Plain mechanical trip .....	135
Electrically controlled mechanical trip .....	31
Intermittent electrical contact .....	63
Insulated truck with short track circuit section .....	9
Intermittent induction .....	4
Inert roadside element .....	2
Non-magnetic rail .....	2
Continuous electrical contact .....	40
Continuous induction .....	2
Wireless .....	1
Combined intermittent induction and intermittent electrical contact .....	1
Combined non-magnetic rail and intermittent electrical contact .....	1
Unclassified .....	11

The devices in service, or which have been installed for test purposes and also those that were examined by the committee in the shop or laboratory include the following: An installation on the United Railway & Electric Company, Baltimore, Md.; Automatic Control Company's device inspected in the office of the company at Indianapolis, Ind.; Clifford Automatic Train Stop Company's device inspected in the company's shop at Scranton, Pa.; an installation on the Key Route, Oakland, Cal. Kinsman Devices: Six installations inspected, the New York Municipal Railway, the Interborough Rapid Transit, the Hudson & Manhattan, the Pennsylvania Tunnel & Terminal Company, the Philadelphia Rapid Transit Company and the Boston Elevated; Nevens-Wallace Train Control Company's device inspected at Waltham, Mass., on the Boston & Maine; Willson-Wright Safety Appliance Company's device inspected on the Washington Water Power Company's electric lines at Spokane, Wash.; American Railway Signals Company's device inspected at the laboratory of Thomas E. Clark, Detroit, Mich.; American Train Control Company's device inspected on the Chesapeake & Ohio, between Charlottesville, Va., and Gordonsville; Casale Safety Device Company's device inspected on the Chicago, Rock Island & Pacific, near Blue Island, Ill.; General Railway Signal Company's devices inspected at the shops and laboratory of the company in Rochester, N. Y.; General Safety Appliance Company's device inspected on the Spokane International; Gollos Railway Signal Company of America, device inspected in the office of the company at Chicago; International Signal Company's device inspected in the company's office at New York; Miller Train Control Corporation, device inspected at the Railway Appliances Exhibit in Chicago and on the Chicago & Eastern Illinois at Danville, Ill.; Orcutt Automatic Train Control Company's device inspected on the Millbury branch of the Boston & Albany; Shadle Automatic Train Signal Company's device inspected on the Cincinnati, Indianapolis & Western, near Indianapolis, Ind.; Simmen Automatic Railway Signal Company's device inspected on the Mewaba Railroad at Virginia, Minn., and on the Indianapolis & Cincinnati Traction; Thayer Automatic Signal and Train Control Company, examination was made of plans and some of the apparatus at Spokane, Wash.; Train Control Appliance Company's device inspected at the Railway Appliances Exhibit at Chicago. B. F. Wooding: Certain parts of this device were examined in New York. The type of apparatus is the

same as that tested on the Delaware, Lackawanna & Western, and inspected by the Bureau of Safety, Interstate Commerce Commission in 1917; Safety Block Signal Company's device inspected at Philadelphia, Pa. (has been tried on the Huntingdon & Broad Top Mountain Railroad); All-Weather Train Controller Company's device inspected at the company's shop in Newark, N. J.; National Safety Appliance Company's device inspected at the company's shop at San Francisco, Cal., and on the Western Pacific at Oroville, Cal.; Sprague Safety Control & Signal Corporation, device inspected at the company's laboratory, New York; Austen H. Fox's device inspected in the laboratory of the Fox Lenderoth Company, New York; Pittsburgh Train Control Company's device inspected at the company's laboratory in Pittsburgh, Pa.; Union Switch & Signal Company's device inspected at the company's shops at Swissvale, Pa.; Thomas E. Clark's device inspected at his laboratory in Detroit, Mich.; Schwyer Electric & Manufacturing Company's device inspected on the Colebrookdale branch of the Philadelphia & Reading; Richards-Ford Train Control Company's device inspected at the company's office at Baltimore, Md.

### General Discussion

The installation of automatic train control appears feasible (assuming that a type to satisfactorily meet the operating conditions will be fully developed) to protect trains moving with the established direction of traffic on main tracks, but it is doubtful if a device can be developed to protect all movements in the large terminals without restricting train movements to a prohibitive degree. The necessity for automatic train control must be developed in each individual case.

As automatic train control is most necessary for the protection of high speed trains, the apparatus must be suitable, with reasonable maintenance, to operate efficiently on such trains at the highest permissible speed and must not restrict the operation of the engine over any track which it may use. The brake application as made by the train control device must be such as to safely bring the trains of various classes to a stop without endangering the controlled train or trains on adjacent tracks more than would occur if the brakes were applied by the engineman.

The fact that automatic train stop devices of the electrically controlled mechanical trip type are operated with a high degree of success on certain underground and elevated tracks cannot be regarded as conclusive evidence that such devices, or devices of other types intended to accomplish similar results, would be practicable for use on tracks in the open country, subjected to entirely dissimilar operating conditions. On the tracks where these devices are in successful use, the trains run are for passenger service, and their equipment is uniform in character; they are moved at comparatively moderate speeds; clearance conditions are uniform, and there are no weather conditions present to interfere with proper operation. On roads in the open country, on the other hand, the equipment of trains is not uniform, and the variation in train speeds is great; there is also considerable variation in the length and weight of trains, so that the braking effort required, varies widely between trains of different make up. Clearance and weather conditions on tracks in the open country also present difficult problems which are not present on underground and elevated tracks.

The committee believes that any comprehensive study of automatic train control must begin with the block system, as the principle of the block system is fundamental to the subject, and must be the foundation of any automatic train control system. The term "block system" covers any means for maintaining an interval of *space* between trains as distinguished from establishing an interval of *time* between trains at specified points. The signals used in the block system on the railroads of this country, indicate the condi-



tion of the blocks governed and convey certain information to employees responsible for the safe movement of trains. An automatic train control device is not a substitute for the block system, but is merely a means for compelling observance of the rules and practices prescribed for its operation, thus insuring that the block system, or space-interval method of train operation, will be observed.

The superiority of the block system as compared with other methods of train operation is generally recognized. It is in use on practically 100,000 miles of railroad, including the busiest roads or the busiest parts of practically all roads in this country. Notwithstanding the fact that accidents occur on block signaled roads, the use of the block system is, beyond question, attended by a material increase in the safety of train operation and travel. The first step, therefore, which should be taken on lines which are not operated under the block system, in order to meet the need for more complete train protection, is not experimentation with, or the adoption of some form of train control device, but the adoption of the block system itself, concerning which the results of years of experience in practical service on thousands of miles of railroad are available, firmly establishing its functions and value.

The amount of apparatus required and the rules and practices necessary to be followed to render the block system adequate for any railroad, depend upon traffic and operating conditions. On many lines where traffic is light, a simple form of manual block system, with the enforcement of proper rules, is adequate; on busy lines, an automatic block signal system, together with the enforcement of proper rules and practices, is necessary to economically provide protection for train movements, and the proper field for the use of automatic train control devices is in connection with this latter class. The consideration of automatic train control devices should be confined to this field, and any pressure or clamour for the introduction and use of such devices should not be permitted to divert attention from or obstruct progress in the vastly more important field of extending the use of the block system and instituting improvements in block signal apparatus and practices already in use. Constant progress and development is required to keep pace with traffic needs.

Limiting the consideration of automatic train control devices to their proper field of usefulness in connection with automatic signals, however, should not be construed as minimizing the importance or possible value of such devices. The practical development of automatic train control devices and their use to supplement existing automatic block signals for the purpose of compelling obedience to signal indications is highly desirable.

The use of train stopping devices on lines where trains are run on close headway will require the use of some form of speed control apparatus in order to maintain the required capacity. The need of speed control is recognized, but little progress has been made in meeting the requirements. Some of the conditions under which speed control may be used are: (1) To prevent a predetermined speed being exceeded regardless of track conditions. (2) To permit a train to proceed at a predetermined low speed after having been stopped by an automatic brake application. (3) To permit a train to pass a brake application point at a predetermined speed without receiving an automatic brake application. (4) To permit a train to pass an approach indication point without an automatic brake application provided the engineer properly observes the approach indication. (5) To permit a train to proceed without an automatic application of the brakes as long as the speed of the train is controlled in accordance with the signal indications.

In a considerable number of tests of automatic train control devices which have been conducted during the past several years, the apparatus tested has been far less substantial

and rugged in construction than modern signal and interlocking apparatus in common use, notwithstanding that the operating conditions and requirements are, generally speaking, more severe for train control than for signal devices. In some cases, also, the installations tested were only temporary, and the apparatus was not so constructed and installed that successful operation for a considerable period of time could reasonably be expected. Many of these devices have been developed and tested by persons who were not familiar with signal apparatus in common use nor with many of the problems which are encountered in the application of these devices to railroad operating conditions. The development of signal apparatus and interlocking devices has been a comparatively slow process, during which countless devices have been proposed, many of them tested and used in actual service, and a comparatively small percentage retained in their original form. It follows that the development of automatic train control devices will probably be along similar lines.

Generally speaking, it may be said that the tests which have thus far been conducted have demonstrated that the functions of automatic train control devices are possible of accomplishment under actual service conditions. But while these functions may be accomplished under the conditions existing at comparatively isolated locations, with the high degree of maintenance ordinarily given to test installations of this character, it is an entirely different problem, and a far more complex one, to apply these devices to the various operating conditions encountered in railroad service, and to accomplish these functions day and night, year in and year out, on a large number of trains and on several hundred miles of a busy railroad. From a practical standpoint, automatic train control devices are still in the development stage, and many problems in connection with their practical application remain to be solved.

The development of automatic train control devices by individual enterprise must of necessity be extremely slow, and it is believed that the time has come when more active co-operation should be undertaken by the railroads. To accomplish this task, a systematic study of the problem must be continued, available engineering talent must be utilized to design and construct apparatus suitable for the purpose intended, apply it to meet various operating conditions, and conduct experiments on a more comprehensive scale than has been done in the past.

#### Conclusions of the Committee

The committee has reached the following conclusions:

1. That the relative merits of the various types of automatic train control cannot be determined until further tests have been made.
2. That more extended service tests (including complete records of performance) are necessary before a decision can be reached on the availability, for general practical use, of any of the devices that have been brought to the attention of the committee.
3. That on a large part of the railroad mileage in the United States, with a given amount of money available for protection purposes, a greater degree of safety can be obtained by installing block signals than by installing automatic train control devices.
4. That on lines of heavy traffic, fully equipped with automatic block signals, the use of train control devices is desirable.
5. That, complying with its instructions and without implying endorsement, the committee finds the following devices available for further test:

American Railway Signals Company.—Intermittent Electrical Contact Type.  
 American Train Control Company.—Intermittent Electrical Contact Type.  
 Automatic Control Company.—Electrically Controlled Mechanical Trip Type.  
 Casale Safety Device Company.—Intermittent Electrical Contact Type.  
 Clifford Automatic Train Stop Company.—Electrically Controlled Mechanical Trip Type.  
 General Railway Signal Company.—Intermittent Electrical Contact Type.  
 General Railway Signal Company.—Inert Roadside Element.

International Signal Company.—Intermittent Electrical Contact Type.  
 Miller Train Control Corporation.—Intermittent Electrical Contact Type.  
 National Safety Appliance Company.—Electrically Controlled Mechanical Trip Type.  
 Schwyer Electric & Mfg. Company.—Inert Roadside Element.  
 Shadle Automatic Train Signal Company.—Intermittent Electrical Contact Type.  
 Sprague Safety Control & Signal Corporation.—Induction Type.  
 Union Switch & Signal Company.—Continuous Induction Type.  
 Wooding, B. F.—Intermittent Electrical Contact Type.  
 Willson-Wright Safety Appliance Company.—Electrically Controlled Mechanical Trip Type.

6. That it does not appear necessary to make tests of all of the devices of a type to determine the availability of that type for general practical use.

7. That a committee on automatic train control should be continued.

The committee, therefore, submits the following recommendations:

1. That this, or a similar, committee be continued to the end of federal control, extending the present provisions for the employment of a permanent staff.

2. That, at the termination of federal control, the work of this committee be continued under the American Railroad Association. On account of the importance of the subject the work should be done by a special committee, having the same standing as a section of the association. The Bureau of Safety, Interstate Commerce Commission, should, as now, have representation on this committee. This committee should include in its work:

(a) Analysis of the reports of train accidents now made to the Interstate Commerce Commission.

(b) Authorization of tests to be undertaken and such supervision of them, in cooperation with the Interstate Commerce Commission, as may be necessary.

3. That arrangements be made by the Railroad Administration or, after the termination of federal control, by the American Railroad Association, for the further practical test, under rules that may be adopted by the committee, of such devices as may be available for that purpose. Such tests should include, in form prescribed by the committee: (a) record of performance; (b) record of installation cost, separate between roadside and train apparatus, and into unit costs; (c) record of cost of modifications of the existing signal system to accommodate the test installation; (d) record of direct operation and maintenance costs.

## Administration Co-operating with Railroads on Tie and Rail Purchases

THE DIVISION OF PURCHASES of the Railroad Administration is co-operating with the railroad companies in determining a policy as to the purchase of ties and rails for use after the termination of federal control with a view to getting the necessary orders for future delivery placed without too great disturbance of the market by the resumption of competitive purchasing. H. B. Spencer, director of the Division of Purchases, after a conference with representatives of the regional directors, discussed the matter with representatives of the Association of Railway Executives, who finally referred it to the advisory committee headed by General Atterbury, vice-president of the Pennsylvania, and this committee has held further conferences with the Division of Purchases. As to ties decision has been reached that the Division of Purchases will continue its present practices until March 1 and the railroad companies are looking after their own requirements beyond that date. As to rails, the Railroad Administration has engaged to take at \$47 a ton all open-hearth rail delivered during January and February with the understanding that the companies will take those not actually used during that time, and the companies are placing their own orders for future delivery.

## Valuation Arguments

ORAL ARGUMENTS before the Interstate Commerce Commission on the elements to be considered by the commission in determining final value in the valuation proceedings now before the commission, which include only six cases but the principles of which will apply to later cases, were completed on January 9 after three days had been devoted to them. Extracts from the principal briefs were published in last week's issue. Oral arguments were presented by C. A. Prouty, director of the Bureau of Valuation of the commission; P. J. Farrell, chief counsel of the commission; W. C. Brantley and Leslie Craven of the President's Conference Committee, representing the railroads; S. W. Moore, representing the Kansas City Southern; J. E. Benton, A. E. Helm, Paul P. Haynes and Matthew Mills for the state commissions; and Glenn E. Plumb and Donald Richberg for the railroad brotherhoods.

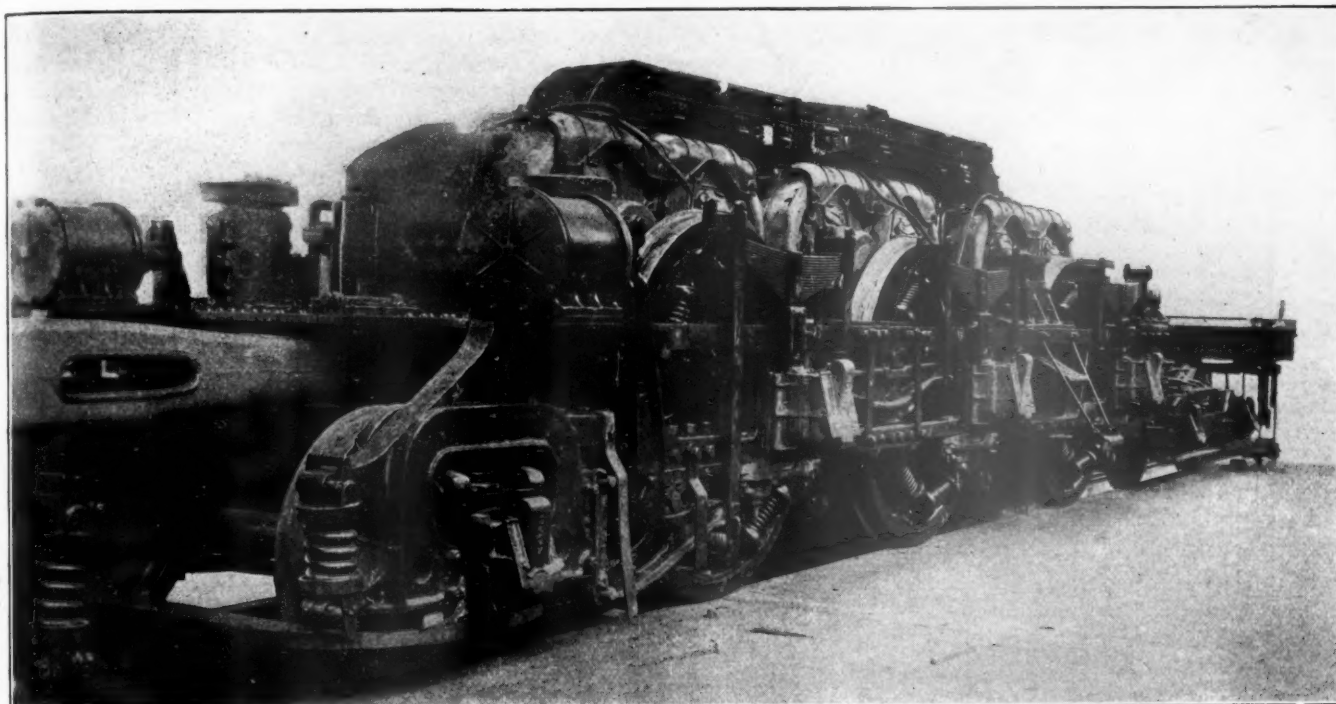
The principal argument for the brotherhoods was presented by Mr. Richberg and was devoted mainly to the proposition which Mr. Plumb has advanced ever since he became the representative of the brotherhoods in the valuation proceedings, to the effect that the railroads are not entitled to the full value of their property, but that their interest is confined to the grants in their charters, which, he says, limit the use of the property to that of a public highway. Mr. Plumb made only a brief statement in which he argued from a provision in the first constitution of the State of Massachusetts that a corporation cannot be given property rights in excess of the measure of its service to the community and that no one can reduce to market value that which he possesses without parting with the possession or control of it. Director Prouty in his argument admitted that an allowance should be included in valuation for the going value, but took the position that the commission need not be too specific in explaining on what basis its final valuation was determined.

Chief Counsel Farrell aroused a controversy with the railroad lawyers by asking the commissioners to rely very largely on their judgment of the equity in the case and as to what values should be allowed for rate-making purposes. He would not include allowances for property donated, although the donation may have been to a predecessor of the present carrier and he cited a case of a road built for logging purposes which had earned sufficiently to amortise the cost of its property and was later devoted to public service as a common carrier for freight and passengers. In such a case he took the position that the value for rate-making purposes would be less than either the original cost or the cost of reproduction. Mr. Farrell also argued that as the Supreme Court would protect a railroad against the use of unit prices obtained in a period of low prices it would also protect the public against the use of unit prices derived in a period of high prices and argued that the cost of reproduction should be based on unit prices under normal conditions. He took the position that the prices used by the Bureau of Valuation as of 1914 represent normal conditions because they were based on a consideration of the fluctuations over a period of years.

The Kansas City Southern has filed a motion with the Interstate Commerce Commission for a re-hearing in its case on which the commission has served its valuation report, on the ground that the report is erroneous in many particulars. Permission is asked to file a brief in support of the motion.

"L'INFORMATION UNIVERSELLE" is publishing a volume, entitled "France," being a catalog of French industry, exports, etc. The 1919-20 edition will contain monographs on metallurgy, machinery in all its branches, hydraulics, electrical engineering, etc. All inquiries should be addressed to "L'Information Universelle, 101, Rue St. Lazare, Paris."





*Running Gear of One Half of the Locomotive With Motors in Place*

## Electric Passenger Locomotives for the St. Paul

**Ten Quill-Geared Units Will Be Used to Haul Passenger Trains Between Harlowton, Mont., and Avery, Idaho**

**T**HE TEN Baldwin-Westinghouse electric locomotives mentioned in the November 7, 1919, and February 1, 1918, issues of the *Railway Age* are now being delivered to the Chicago, Milwaukee & St. Paul for passenger service on the Rocky Mountain division. The completed locomotive complies very closely with the design which was described almost two years ago.

The motive power equipment for the initial electrified division of 440 miles over the Rocky Mountains consisted of 32 freight, 10 passenger and 4 switching locomotives. When it was decided to electrify the division over the Cascade mountains 15 new passenger locomotives were ordered. Five of these, built by the General Electric Company, described in the October 24, 1919, issue of the *Railway Age*, will be used on the Cascade division; the other ten described in this article will be used on the Rocky Mountain division. The original 10 passenger locomotives will be regearred for freight service, and a part of the 42 freight locomotives will be used on each electrified division.

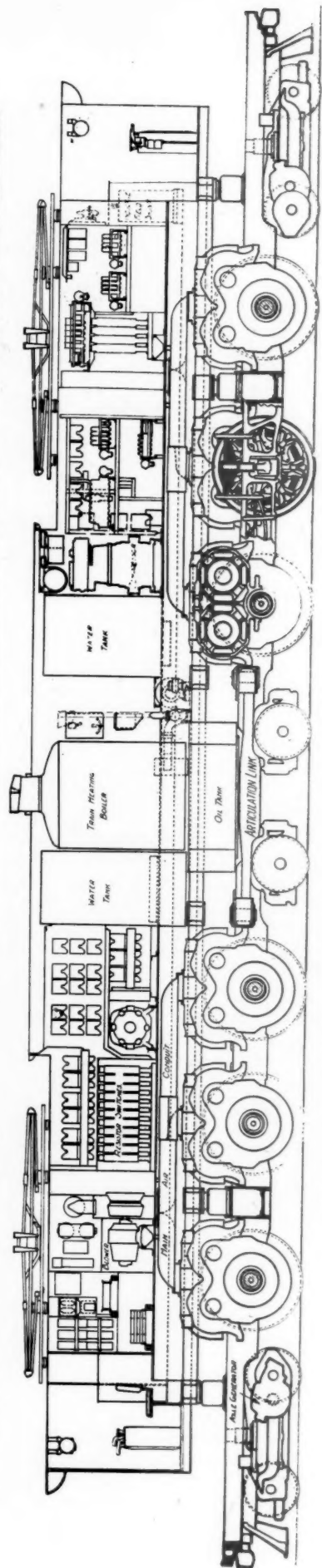
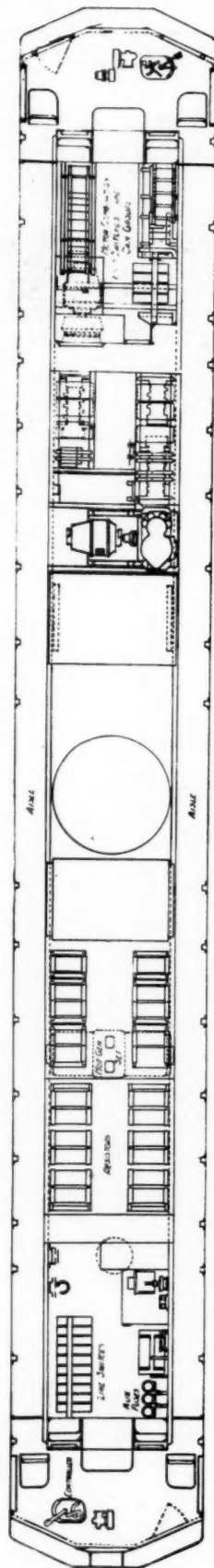
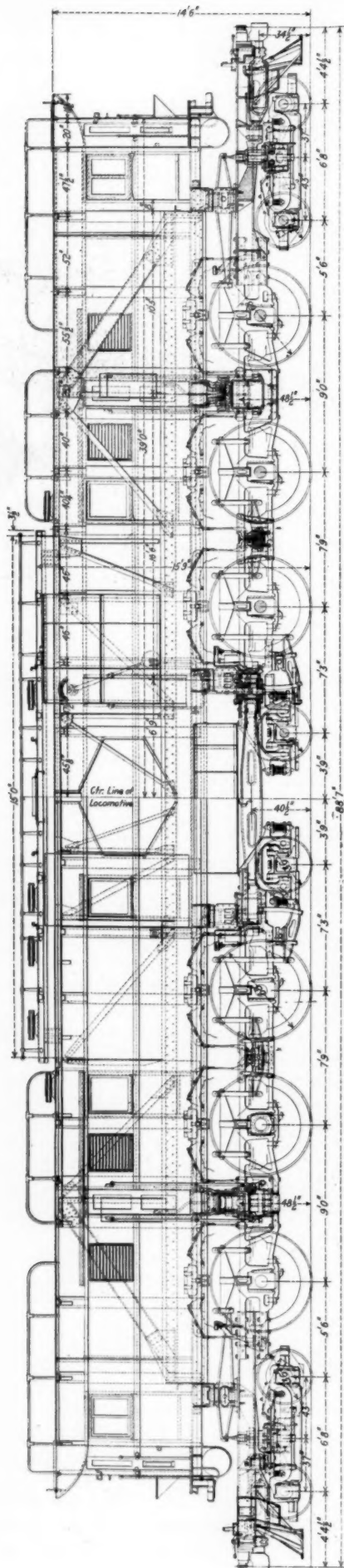
The new passenger locomotives for the Rocky Mountain division will develop 4,200 horsepower for an hour without exceeding the normal rated temperature of the motors and have a normal starting drawbar-pull of 100,000 lb. The drawbar-pull may be increased until the wheels are slipped without injury to the electrical apparatus.

The locomotive consists of two duplicate running gears of the Pacific type, placed back to back, supporting a single cab. The wheel arrangement of the locomotive is 4-6-2-2-6-4, with 68-in. drivers, a rigid wheel base of 16 ft. 9 in. and a total wheel base of 79 ft. 10 in. Rigid and floating center pins have been provided to relieve the cab structure of pulling and bumping strains, all such forces being transmitted directly through the running gear.

Many of the desirable features of steam locomotives have been included in the mechanical design, and in the design of the electrical apparatus the makers have included equipment which was found to be particularly good in previously built electric locomotives. These points are essentially: the limited amount of high voltage auxiliary apparatus, the stability of the operation of the main motors, the wide range of speed operation and the disposition of the apparatus in its grouping and mounting.

The articulation of the various trucks was considered one of the most important points of design. It was the endeavor to have each truck laid down so that each one would take care of itself and would not have to be led along by any of its companion trucks. During a series of tests made at East Pittsburgh, Pa., this feature of the mechanical operation of the locomotive was pronounced and the locomotive was declared to have especially good riding qualities. An extensive study was also made of weight distribution and its equalization between trucks. With this latter end in view, comparatively long spring hangers have been used so that any slight increase or decrease in their length for the purpose of shifting the load does not have any noticeable effect on the position of the locomotive springs.

The 3,000-volt direct current power is conducted through the necessary switches and resistances to six motors of the twin-armature type mounted on the locomotive running gear. The two armatures of each motor are permanently connected in series, and the control is so arranged that at least two motors are always in series, with the result that the voltage across any one armature never exceeds the value of 750 volts during motor operation. In addition to this, the control is further arranged so that all main motor fields are connected on the grounded side of the circuit, thus maintaining most



Side Elevation and Plan and Section of Locomotive, Showing General Arrangement of Apparatus



of the voltage stresses on the motors practically in line with commercial usage for the past 15 or 20 years.

One motor is mounted over each driving axle on the frame of the locomotive, and power from each armature is transmitted by pinions to a gear with an 89:24 reduction. The gear is mounted on a quill shaft, which is also supported on the locomotive frame, and which surrounds the locomotive axle with an appreciable clearance. The connection between the driving wheel and the quill shaft is made by springs. One end of each spring is connected to the quill shaft, while the other engages a bracket on the spoke of the driving wheel.

This arrangement permits the driving wheels to follow the unevenness of the roadbed, without affecting gear mesh, as well as cushioning the torque of the motor. In the design of this type of quill shaft the details have been governed by the experience obtained from the successful application of a similar type of drive on the New York, New Haven & Hartford locomotives, making due allowance for the increase in tractive effort.

The cab structure of the locomotive, which also partially

have not been used before. The main driving motors are series motors, and in order to make them regenerate power to the line it is necessary that they be separately

#### CONDENSED TABLE OF LOCOMOTIVE WEIGHTS AND DIMENSIONS

Normal trolley voltage.....	3,000 volts
Total weight.....	275 tons
Weight on drivers.....	336,000 lb.
Weight on lead trucks.....	66,000 lb.
Weight on trailing trucks.....	41,000 lb.
Total wheel base.....	79 ft. 10 in.
Driving wheel base.....	16 ft. 9 in.
Maximum rigid wheel base.....	16 ft. 9 in.
Diameter of drivers.....	68 in.
Diameter of lead truck wheels.....	36 in.
Diameter of trailing truck wheels.....	36 in.
Locomotive capacity at 23.8 m.p.h. (1 hr. rating).....	4,200 H. P.
Normal starting tractive effort.....	100,000 lb.
Normal speed on level track.....	55 m.p.h.
Capacity of steam boiler.....	4,000 lb. per hr.
Capacity of water tanks.....	25,500 lb.
Capacity of oil storage tank.....	750 gal.
Cab length.....	78 ft. 0 in.
Total overall length.....	88 ft. 7 in.

excited. The control of the excitation of the main motors for regeneration is initiated manually by the operator from the master controller, the exciting current coming from two small generators geared to one of the axles of each bogie



Chicago, Milwaukee & St. Paul Electric Passenger Locomotive.

encloses the main motors, contains the auxiliary apparatus necessary for the proper functioning of the motors. Engineers' operating compartments are located at either end, connected by aisles extending along the side of the cab. All high voltage apparatus is enclosed in compartments to give complete protection to the engine crew while the locomotive is in operation. When the locomotive is "dead" easy access is afforded for inspection and adjustment of all apparatus by removing the compartment sides and by center aisles opening through expanded metal doors into the cross aisles.

The manner of regenerating power for operation on down grades used on these locomotives embodies features which

truck. These small generators in turn are excited from an independent source, consisting of a motor-generator set operating in parallel with a small storage battery. All of the main motors are used during regeneration. Efforts have been made in the design of main motors and the axle generators to guard against any possibility of snow getting into the windings. One of the axle generators is mounted on each bogie truck in a standard street railway motor frame.

#### Control

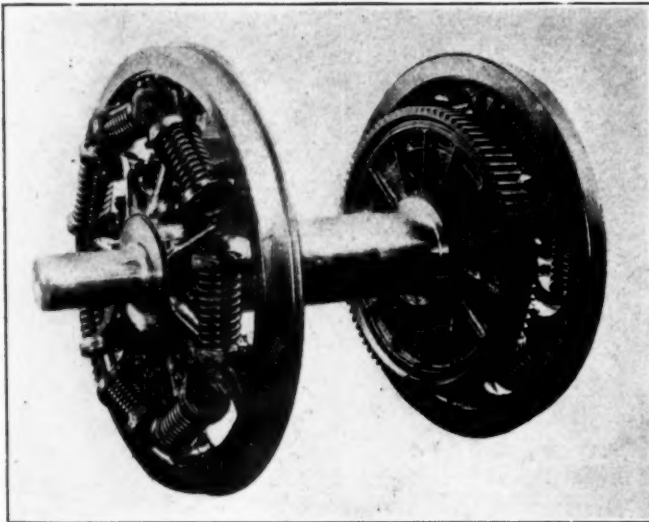
The locomotive control provides three motor combinations, giving one full series and two series-parallel connections.

The two latter connections consist of two parallel circuits of three motors in series and three parallel circuits with four motors in series. In each of these motor combinations three running notches are provided, which are full field, short shunt and long shunt. This provides a total of nine running speeds without resistance connected in the circuits.

While descending a grade the excitation of the motor field is entirely under the control of the engineman and may be increased or decreased as desired, causing corresponding increments and decrements to the regenerative effort of the locomotive, thus varying the speed of the train through any desired range. The full motor capacity of the locomotive is available for regeneration, and under all conditions of grade on which it will be used it should be able to handle any train down grade that would require double-heading on the way up.

#### Auxiliary Apparatus

Power for energizing the control circuit and operating the auxiliary apparatus, a small blower motor, the motor-driven air compressor, etc., when these are not being driven by the axle generator, is obtained from a small motor generator set and storage battery which are used to excite the fields of the axle generators. The high-tension winding of this set



Driving Wheels with Springs, Quill Shaft and Gear

is the only piece of revolving apparatus in a locomotive, with the exception of the main motors, which is connected to the 3,000-volt circuit. The low-tension side of the motor generator set is provided with slip rings for the generation of a low voltage alternating current for the headlight and for some of the interior cab lights. During motoring and when coasting without regeneration, the axle generators are automatically connected to the low voltage auxiliary circuit, so that the motor generator for the greater part of the time is only necessary for furnishing excitation to the axle generator field and for charging the storage battery. This reduces the necessary size of the motor generator set.

All main motor and resistance circuits are opened and closed by electro-pneumatic 3,000-volt switches which are standard for Westinghouse unit switch control. These switches are provided with blow-out coils for breaking the arc. Transfer of circuit where no high voltage current is broken is accomplished by means of cam-type contactor groups adopted for the purpose of reducing space and weight by the elimination of otherwise necessary unit switches. The control circuits of all unit switches and the cam-contactor groups are respectively interlocked electrically to prevent any improper functioning of the apparatus. All

unit switches, cam-contactor groups, grid resistances, protective relays, etc., are mounted in compartments entirely closed off from the enginemen's cabs and the aisles of the locomotive, as previously mentioned.

The center compartment of the locomotive is given up entirely to an oil-fired steam boiler, its supply tank and auxiliaries. This boiler supplies steam for heating trains and is capable of evaporating 4,000 lb. of water per hour. Two storage tanks for water are provided, having a combined capacity of 25,500 lb. of water. There is also a tank for the fuel oil, with a capacity of 750 gallons. The boiler also feeds radiators in each of the operating cabs.

### I. C. C. to Continue Railroad Administration Operating Statistics

THE INTERSTATE COMMERCE COMMISSION has issued an order prescribing rules pertaining to operating statistics intended to continue, with slight modifications, the compilation by Class I steam railways of the basic data required on the forms on which operating statistics are now reported to the United States Railroad Administration. Such data will be reported in full in the annual report forms and a part of them will be reported monthly as specified in Schedule II of the rules. Though the order had been made effective as of January 1, 1920, the monthly reports will not be required by the Interstate Commerce Commission while the present monthly reports of operating statistics are made to the United States Railroad Administration. This order is not intended to abrogate the classification of train-miles, locomotive-miles, and car-miles for steam roads prescribed by the commission and effective on July 1, 1914, nor to cancel requirements as to operating statistics heretofore called for in annual reports.

The railroad executives had made plans for continuing the reports if the commission had not decided to do so.

The rules prescribed in Schedule I are as follows:

1. Average number of miles of road or first running track operated, and of other main tracks, not including yard tracks and sidings, should be shown for freight service and mixed service combined, and also for passenger service and mixed service combined.
2. Train-miles, locomotive-miles and car-miles should be reported in accordance with the classification of July 1, 1914. In addition, the direction of movement should be shown; that is, whether east or west. Where movement of traffic as a whole is not east or west, north should be substituted for east and south for west, or north and south should be combined with east and west according to traffic movement. Work equipment car-miles in transportation service freight trains should also be segregated. For comparisons with operating expenses under section 10, Schedule I, train-miles and locomotive-miles should also be reported in the following form:

Class of service	Train-miles	Locomotive-miles
Freight train <sup>1</sup> .....		
Passenger train <sup>1</sup> .....		
Total .....		

<sup>1</sup> Including a proportion of mixed and special train services based on car-miles in mixed and special trains.

3. Gross ton-miles in freight transportation service should be reported as outlined below. Gross ton-miles are defined as tons of 2,000 pounds behind locomotive tender (cars, contents and caboose) moved 1 mile. They are to be computed from conductors' train reports. Gross ton-miles in mixed-train and special-train services should be computed



from conductors' train reports in the same manner as gross ton-miles in freight-train service, but should include only the gross tons of freight cars and their contents, and of the caboose. Direction of movement should be shown as provided in paragraph 2.

GROSS TON-MILES

Class of freight service	East	West	Total
Freight train .....			
Mixed train .....			
Special train .....			
Total .....			

4. Rating ton-miles in freight-train service only shall be reported by direction of movement as indicated in paragraph 2. Rating ton-miles are defined as potential gross ton-miles which would be produced were all trains loaded to 100 per cent of the slow freight rating for normal summer weather conditions, with allowance for changes in rating over sections of the run. When the potential trainload in the direction of favoring grades is expressed in number of cars, an arbitrary tonnage rating should be used as the basis for rating ton-miles.

5. Net ten-miles, revenue and non-revenue, in freight transportation service will be compiled from conductors' wheel reports and will be reported as outlined below.

NET TON-MILES OF REVENUE AND NON-REVENUE FREIGHT

Class of freight service	East	West	Total
Freight train .....			
Mixed train .....			
Special train .....			
Total .....			

The ton-miles compiled from conductors' wheel reports may be used as a basis for arriving at the annual net revenue ton-miles of freight by subtracting the non-revenue ton-miles from the total. If net ton-miles are currently compiled from waybills, the waybill ton-miles should be used for net revenue ton-miles.

6. Train-hours of freight trains, both ordinary and light, not including mixed, special, or motor-car trains, shall be reported by direction of movement to show the elapsed time of trains between the time of leaving initial terminals and the time of arrival at final terminals, including delays on the road, as shown by the conductors' train reports or dispatchers' train sheets.

7. Tons of 2,000 pounds of coal consumed by locomotives shall be compiled by classes of locomotive service. Equivalent coal tonnage for fuel oil used on oil-burning locomotives shall be included; and the same principle shall be applied to electric locomotives, by including equivalent net tons of coal, based on K. W. H. per net ton of coal consumed in generating power, used by electric locomotives. Coal used in generating power for electric multiple unit trains should not be included. The extent to which electric locomotives use water-generated power should be stated, and the reporting carrier should be prepared to furnish the locomotive-miles, in freight, passenger, mixed, special, and switching services, the gross ton-miles and the passenger-train car-miles involved in trains propelled by such water-generated power.

8. The distribution of locomotive-hours shall be shown in the following form.

All locomotives on the road, owned, leased, or rented, should be included, but owned locomotives in service on other roads should be excluded.

Returns for item 1 should represent the time in productive road (train and switching) service and in yard switching

service. For locomotives in road service, the returns should be taken from conductors' train reports or dispatchers' train sheets, and based on hours from leaving time at initial terminal to arriving time at final terminal, including train switching time and delays on road. For yard switching service, the information may be taken from yard records, and based on hours between the time a locomotive leaves engine terminal to begin yard switching work and the time it returns to engine terminal.

Returns for item 2 (a), hours at terminals, represents time at terminals before and after the period of productive service, exclusive of enginehouse time reported under 2 (b).

Item	Locomotive-hours in—				Total
	Freight train service	Passenger train service	Yard switching service	Mixed, special, and work-train services	
A. Serviceable locomotives:					
1. On road or in yard switching service.....					
2. (a) At terminals.....					
(b) In enginehouses..					
3. Stored .....					
4. Total serviceable.....					
B. Unserviceable locomotives .....					
Total <sup>1</sup> .....					

<sup>1</sup> The total number of hours divided by the number of hours in the year will give the average number of locomotives.

For road service, the returns may be taken from enginehouse and yard records, and based on hours between the time the locomotive is delivered to transportation department and the time the locomotive leaves initial terminal, and between arriving time at final terminals and the time the locomotive is delivered to enginehouse forces. For yard switching locomotives, data are to be taken from enginehouse and yard reports, and based on hours between the time the locomotive is delivered to transportation department at engine terminal and the time it leaves engine terminal for yard switching work; and hours between the time the locomotive reaches engine terminal at end of day and the time it is delivered to enginehouse forces.

Engines stored are those under white lead or stored in serviceable condition and available for service.

Unserviceable locomotives include those awaiting or undergoing repairs if held more than 24 hours on that account, including unserviceable locomotives stored or awaiting sale. In distributing unserviceable hours among classes of service, the normal assignment of a locomotive may be followed if it is not practicable to divide the time between the classes of service in proportion to the miles or days in each class of service since last general repairs.

9. In addition to the statement of freight cars owned there shall be stated the number of serviceable cars, excluding caboose and work equipment, and including home, foreign, and cars of private car lines, on line daily, the number of cars in or awaiting shops daily, including all "bad order" cars, and the total number of cars on line daily. These items should be shown separately for home cars and foreign cars. The number of the cars which are stored and which are included in the number of serviceable cars on line daily should also be shown. Under "cars stored" are to be included only such serviceable cars as are temporarily removed from transportation service on account of a falling off in business. Surplus cars not definitely stored are not to be included under "cars stored" nor should bad order cars be included under this head. The number of cars on line daily is to be determined by an inventory taken on the first day of each month, with a daily debit or credit adjustment from the summary of the interchange reports and the repair track and shop reports. The annual

figures reported will be the average of the monthly figures obtained by dividing the sums of the cars on the line each day by the calendar days in the month.

10. The following primary expense accounts shall be reported with the modifications indicated:

Item	Freight service <sup>1</sup>	Passenger service <sup>1</sup>
(1) Locomotive repairs (accounts 308 and 311, but excluding yard switching locomotives).....		
(2) Train enginemen (accounts 392 and 393, including wages of motormen on electric locomotives, but excluding wages of motormen on motor-car trains.)		
(3) Fuel for train locomotives (account 394, including electric locomotive proportion and excluding motor-car train proportion of accounts 395 and 396)....		
(4) Other locomotive supplies (including accounts 397, 398, and 399) .....		
(5) Enginehouse expenses—train (account 400).....		
(6) Trainmen (account 401, excluding conductors and trainmen of motor-car trains).....		
(7) Train supplies and expenses (account 402, excluding all charges on account of motor-car trains).....		
Total—selected accounts.....		

<sup>1</sup> Including a proportion of mixed and special train expenses on the basis of car-miles in mixed and special trains.

Returns in accordance with the following outlines in Schedule II are to be made for each month, beginning with January, 1920, including comparative items for the same month of the preceding year. Cumulative figures from the beginning of the year should also be shown.

#### 1. Average mileage operated:

Item	In freight and mixed service	In passenger and mixed service	In all services
Average number of miles of road..			
Average number of miles of other main tracks .....			

#### 2. Train-miles and locomotive-miles:

TRAIN MILES AND LOCOMOTIVE MILES BY CLASS OF SERVICE			
Class of service	Train-miles	Locomotive-miles	
Freight train .....			
Passenger train .....			
Mixed train .....			
Special train .....			
Motor-car train .....			
Total.....			
Work service .....			
Freight service <sup>1</sup> .....			
Passenger service <sup>1</sup> .....			

<sup>1</sup> Including a proportion of mixed and special train service based on freight and passenger car-miles in mixed and special trains.

#### 3. Car-miles:

CAR-MILES BY CLASS OF SERVICE				
Class of service	Freight-train car miles		Passenger train car-miles	Work equipment car-miles
	Loaded	Empty		
Freight train .....				
Mixed train .....				
Special train .....				
Motor-car train .....				
Work equipment in transportation service .....				
Total.....				
Work service .....				

#### 4. Cars on line:

Items	Home cars	Foreign cars	Total
(a) Number of cars on line daily:			
(1) Serviceable .....			
(2) In or awaiting shops, including all "bad order" cars .....			
(3) Total .....			
(b) Number of cars stored included in (a) (1) .....			

For definition of terms under above head, see Schedule I, par. 9.

#### 5. Gross ton-miles:

Freight train service .....	
Mixed train service—freight .....	
Special train service—freight .....	
Total freight gross ton-miles.....	

6. Net ton-miles, revenue and non-revenue, in freight mixed, and special services, from conductors' train reports.

7. Number of revenue tons carried and number of revenue tons carried one mile.

8. Number of revenue passengers carried and number of revenue passengers carried one mile.

9. Selected operating revenue and expense accounts separated between freight service and passenger and allied services according to rules prescribed.

Item	Freight service <sup>1</sup>	Passenger service <sup>1</sup>
(1) Locomotive repairs (accounts 308 and 311, but excluding yard switching locomotives).....		
(2) Train enginemen (accounts 392 and 393, including wages of motormen on electric locomotives but excluding wages of motormen on motor-car trains).....		
(3) Fuel for train locomotives (accounts 394, including electric locomotive proportion and excluding Motor-car train proportion of accounts 395 and 396).....		
(4) Other locomotive supplies (including accounts 397, 398 and 399) .....		
(5) Enginehouse expenses—train (account 400).....		
(6) Trainmen (account 401, excluding conductors and trainmen of motor-car trains).....		
(7) Train supplies and expenses (account 402, excluding all charges on account of motor-car trains).....		
(8) Freight revenue (account 101).....		
(9) Passenger revenue (account 102) .....		
Total—selected accounts.....		

<sup>1</sup> Expenses should include a proportion of mixed and special train expenses on the basis of car-miles in mixed and special trains.

#### 10. Quantity and cost of fuel:

- (1) Net tons and total cost of coal charged to account 394.
- (2) Gallons and total cost of oil charged to account 394.

The commission has also issued revised rules reviving the requirement that a separation of operating expenses between freight and passenger service be reported, which was suspended on October 23, 1917.

### Mr. Hines to Federal Managers

DIRECTOR GENERAL HINES issued the following to federal managers under date of January 2, 1920:

"In entering upon the last two months of federal control, I ask anew for the greatest possible personal interest on the part of every federal manager in obtaining the best service for the public and in securing the greatest value in return for our operating expenditures and in making for these purposes every reasonable endeavor to secure the understanding co-operation of the employees.

"I have at all times felt the strong desire of the federal managers to carry forward operation on the best practicable basis, despite all the difficulties which were inevitably the outgrowth of the war conditions, and I have frequently testified to their loyal support. Nevertheless I wish to add again this personal word in appealing to them for their continued support up to the last minute of federal control. The railroad service is a continuing function and obligation, regardless of what management temporarily controls it, and we must all do our very best to prevent the prospective change of management from impairing in the meantime the efficiency of the work.

"Whatever we can do in these two months in giving the best service and in getting the greatest efficiency will also be an important contribution toward obtaining the best results in the future.

"Please, therefore, keep up and if possible intensify your vigilance and initiative and make sure that the same spirit continues to actuate all subordinates."



# The Cummins Bill and the Railroad Problem\*

## A Discussion of the Financial and Labor Provisions of the Senate Bill Now in Conference

By Oscar W. Underwood

United States Senator from Alabama.

THE Senate of the United States has passed a bill relating to the transportation system of America that, if it becomes a law, will mark a new era in the history of the American Republic in at least one respect. The era of war between capital and labor and the great transportation lines of this country will cease. The era of settlement by reason, by arbitration, by the law of social justice will have begun. It is a practical question but it is a home question. This bill relates to the industrial life of the nation. It relates to the happiness and peace of the home life of the nation.

### Legislation a Practical Question

This bill is not in entire accord with my views, although I supported it in detail; but in passing let me say there are few great bills that have passed the Congress of the United States in the 24 years I have represented this immediate constituency that in all their details have met with my approval. Great legislative enactments are matters of compromise, and men who desire to be constructive in legislation must accept the best obtainable to accomplish the desired result and can not expect that every detail of legislation will meet with their approval.

There are many problems embraced in the so-called Cummins bill that it is not necessary for me to go into. There are many pages devoted to changes of organic law suggested by the Interstate Commerce Commission. There is incorporated within the pages of this bill the entire and absolute control of the issuance of railroad securities for the future, the regulation of the issuance of railroad securities so that in the future there shall be no more so-called watered stock; so that the money that is invested in the railroads and must earn interest in the future must be money that is actually invested for the benefit of the public.

There has been practically no opposition to these features of the bill. Public sentiment has grown and drifted until almost by universal acclaim these features of the bill are recognized by the public as necessary in the public interest and have been accepted. I want to go to the battle line of the bill, the contested part of the bill, the questions where men differ, and give you my views for my support of the bill on these features.

This proposal for solution of the railroad problem is nothing new. For nearly five years I have been a member of the Senate, and my very first suggestion when I became a member of the Senate was that a joint commission should be appointed to work out the railroad problem and see if we could not place it on a solvent and safe working basis in the interest of the public. It was known as the Newlands resolution. Senator Newlands was chairman of the Interstate Commerce Committee. I wrote the resolution and asked Senator Newlands to introduce it. It was passed by both Houses, and a joint commission to work out the railroad problem was appointed. We had many hearings; we gave long consideration to financial, operating, and labor problems. But before we reached any conclusion or final determination of the question the Great War came on and the railroads came under governmental operation, and the work

of our commission of necessity ceased. The men who were on that commission, though, sat upon the interstate committees of the House and Senate and wrote this legislation that has now gone to conference. So they were educated on the subject before it was actually taken up.

### Labor, Finance, and the Public

There are two paramount sections in that bill. One is section 6, that involves finance, and one is section 29, and the immediately following sections that involve labor. And when you say finance, and when you say labor, you have the whole railroad problem before you, except one other word, and that is the public—the man who pays the bill. There was a time in the history of the development of the railroads when the main factors involved in the problem were the capital and the labor. But to-day the great American Republic has become the vital living force of this question that can not be overlooked in any just settlement of the problems involved.

Section 6 of the bill relates to finance. Under the old system of government regulation of railroads, you know in the beginning when Commodore Vanderbilt established one of the first great consolidated systems of railroads in the country, capital was the all-dominating factor. Capital could charge what it pleased for the transportation of freight, could order labor to do what it wanted to—could handle the whole situation without limitation. But since that day two great organizations have begun to function in the transportation system of the country. One is the government and the other is organized labor.

Four decades ago the Congress of the United States started to regulate the railroads, and in 1906 passed a bill that completed the direct control of the railroads, so far as freight rates were concerned. Organized labor commenced maybe five decades ago, certainly four decades ago; I can not remember the actual date. It was weak in the beginning, and grew and grew until it became a more powerful factor in the operating equation than the capital that owned the railroads.

### The Rate-Making Problem

We are regulating railroads to-day in the interest of the shipper by regulating the freight rate for each piece of freight. The cost of carrying a ton of pig iron from Birmingham to Boston is not fixed by the general manager down here at the railroad office. Of course, I am talking now as if the government were not at present running the railroads, as if they were under private control. The rates are fixed by the Interstate Commerce Commission, and the toll that you have to pay to carry a ton of pig iron to Boston is \$5. It does not make any difference whether you go to the Louisville & Nashville station or the Southern station or the Seaboard Air Line station, you pay the same price for carrying a ton of pig iron to Boston. So it is with a carload of feathers or a package of silk or anything else, the government fixes the rate. Suppose you are on the strongest railroad in the South with your town and your business—a railroad that has dense traffic and high earnings and is able to supply you with all the cars you want and

\*From an address before the Chamber of Commerce and the General public at Birmingham, Ala., on January 2, 1920.

give you adequate service. Are you any more entitled to live and carry on your business from a public standpoint than the man who lives on a railroad necessary in the public interest, necessary to the development of the state, but enjoying a lighter traffic, and therefore to be denominated as a weak road? He has developed a coal mine or a farm or a factory or a grocery store. He wants to live and do business. Because fate has thrown him in a territory of light traffic and you are in a territory of dense traffic, do you think you ought to have any exclusive right to adequate railway service with which to get your goods to the ultimate market of consumption and he not have a corresponding right? Of course, all that depends upon whether his railroad can live and function and do business; and that depends on whether it can finance itself. If it can not finance itself, the development of the South and of the Nation and the fate of existing communities is restricted to a few railroads enjoying unusual advantages.

Now, the difficulty that confronted the Congress of the United States was this: Here is "A" railroad that started out in the beginning and wandered from one town to another. It was not built on a direct line, but it was built because one town wanted to connect with another, and it connected with another, and then they were joined together in one system. It went over mountains and hillsides; it went by circuitous routes; it built up the country. Then came along "B" railroad, after great commerce in the general territory was established, and built a direct line under modern engineering practice, avoiding the hills and building tunnels and making a short line. Now, bear this in mind: Eighty per cent of the revenue of all the railroads is derived from the long haul, the competitive haul, and only 20 per cent from local noncompetitive business. So that you see that a railroad, to live, must for its necessary return look to its competitive business—generally the long haul. It costs the "A" railroad much more to carry its freight to the final market of disposition, the railroad that was built under adverse conditions, than it does the "B" railroad, that was built by modern methods and goes a direct line. Both are necessary in the public interest. Both must survive. And yet they must carry freight at the same rate, because if "B" railroad carries freight more cheaply than "A" railroad all of the through freight goes over "B" railroad, and "A" railroad will starve to death. So far as the loss of capital is concerned, that might not be so serious. You might say, "Sacrifice the man who made a bad investment"; but, my friends, you sacrifice the man who made a bad investment in railroading only by sacrificing the railroad and business and happiness of the thousands and hundreds of thousands of people who live along that line. Their business must be made junk. Their opportunity to reach the ultimate market to dispose of their products will be destroyed if you destroy the road. And that was one of the problems that confronted Congress.

There has been great pressure on the Interstate Commerce Commission in the last two or three decades for lower rates, or against any raise in rates, and if an active railroad with heavy traffic controlling heavy exchange traffic and heavy divisions of rates was making what seemed to be undue profits, the demand was that the rates on freight should come down or remain down, for higher rates would give it greater profits. Its condition was taken as the standard; it was held as the example, and when the rates came down or remained down on the strong road the weak road went into the hands of a receiver, the weak competitive road. Now, that is the great financial problem that has confronted Congress in all these months.

#### A New Test

But we have proposed a new system. You understand that the old basis of regulation of railroads was based on the

effort to determine what was a just and reasonable charge for the transportation of a ton of pig iron from Birmingham to Boston, or a bale of feathers or cotton, or something else. But we found we could not leave it on that basis. There were some few roads that were successfully running and making money by reason of peculiar conditions. A large percentage of them were barely living and not giving adequate service to the public, and that is why you took them over for federal operation during the war, at great expense. Conditions had choked off most of the roads in the country, and when the war came on there was no agency or relief that could put life into them and make them function and carry the soldiers, carry the raw material, and carry on the nation's business during the war except the government itself; and it has cost you hundreds of millions of dollars because your legislation had choked off the majority of the roads before the war came on, and they were unable to meet the stress of war conditions.

Now, the problem that confronts the Congress is to turn these roads back so that all roads necessary in the public interest can function and all serve the public, whether the public lives on the lighter traffic road or the strong road. So we have changed the basis of rate making. The country is divided now into three rate-making districts, the western, southern, and northern. We have said that what is fair to the railroads in the way of return on its capital should be a just return on the fair value of its property. So that we have provided that the basis of freight rates in each district shall be adjusted so as to produce a return of  $5\frac{1}{2}$  per cent on the fair value of the railway property in the rate district. In other words, if the value of the railroad property—the real value now, not watered stock—if the real value of the railroads in the southern district is \$5,000,000,000—and that is approximately about right—the return that these railroads, not individually, but as a whole, in this southern district are to be entitled to earn is as nearly as practicable  $5\frac{1}{2}$  per cent on \$5,000,000,000; it would be something between \$260,000,000 and \$270,000,000— $5\frac{1}{2}$  per cent.

Do you think that is unjust? You can buy an untaxed government bond on the New York Stock Exchange to-day at a price that will yield 5 per cent. It sells enough below par to pay you 5 per cent, with valuable tax exemptions. Do you think you can make these railroads function unless you give that much—5 per cent—to investors in railway securities? Now, they do not get it if they do not earn it. Many of the roads will not earn it; they must work for it and earn it through efficiency if they get it; but on that basis of  $5\frac{1}{2}$  per cent the railroads will have a fair chance. Before the war, or the three years immediately preceding the war, the railroads had an average earning capacity of 5.22 per cent in the aggregate investment, and if this bill goes through they will in the aggregate have a right to earn—that is, their freight rates will be based on a yield of  $5\frac{1}{2}$ , or 5.50, or an increase of twenty-eight one-hundredths of 1 per cent, or about \$50,400,000 for all of the railroads of the United States. Now, that is not an unreasonable increase when you consider the scale on which everything else has increased, and the increased interest which must be paid to attract investments. Now, that is the net; you would pay a good deal more than that in freight rates. That is a net increase, not a gross increase. Of course, all increase in wage, all increase in coal, all increase in steel rails, in costs, goes into gross; but the railroads as a whole would get an increase of \$50,000,000 in net; and it will cost more than \$50,000,000 to make up to railway investors for the increased cost of money; or, you might say, for the depreciation of the value of money; and the increased value of everything else, for a ton of cotton or iron or merchandise will buy more transportation to-day than ever before in the history of the railroads.



But we did not stop there. Some of these railroads will not earn  $5\frac{1}{2}$  per cent on the fair value of their property devoted to public use. Some of them will earn more. We said heretofore that a railroad could earn all it could make. We now put a limitation upon its excess earnings. We have said that a railroad's earning capacity could be 6 per cent on its value, with a graduated proportion of any excess. If it is undercapitalized and earns 6 per cent on the fair value of its property, it will be more than 6 per cent on its capital stock. If it is overcapitalized, it will be less than 6 per cent; and then when its earnings goes to 6 per cent on real value, we have said that it can earn one-half of the earnings between 6 and 7, or one-half of 1 per cent more; and when it goes above 7 per cent, it can only keep for itself one-fourth of what it earns over 6 per cent. The balance has to go into a government fund, a government fund in the interest of the public, a government fund that can be loaned the railroads, weak or strong, that have to borrow money in order that they may compete with the great lenders of money in New York and hold down the price of interest, because you know you—the public—have got to pay that interest. You pay it. The railroad can not run unless you do pay it, and then the fund can be used to be invested by a government board or commission in buying locomotives and cars, and equipment of all kinds and renting it to the weaker roads or the roads that need it whether they are weak or strong. That is in the interest of the public. One of the great problems that you have to contend with is lack of cars, lack of facilities to get your product to the market. Under this bill no longer could it be said that one great concern in America can hold all the ice cars, the refrigerator cars, because if they try to make a monopoly of it the government would build some and furnish them where the public needed them, wherever congestion or scarcity might arise. That is in the interest of the people.

#### Incentive Not Destroyed

Now, there is complaint that we are limiting the earning capacity of these roads. We have given them the incentive to go on. There is no competition in rates now. There is only competition in service; but as this bill would allow them to earn one-half they earn between 6 and 7 per cent and one-quarter of 1 per cent above 7 per cent we would still hold out the inducement for competition in service. But as the government under this bill would direct the Interstate Commerce Commission of the United States that it shall levy freight rates on the public that will enable the railroads to earn—not on their capital stock but on their real value—to the extent of  $5\frac{1}{2}$  per cent, that is practically assuring the aggregate railway investment out of your pocket, Mr. Shipper, whether represented by issues of stock, if issued at real value, or by their bonds, if issued at real value, a return every year; and if the government fixes a reasonable return for them so that they can live and function, it is but just and right that the government shall say how far they shall have the privilege of earning out of the business of the American people.

#### Labor Provisions

Now, I want to come down to the other problem, and that is labor. It is just as vital to you as finance. Labor functioning properly in the great railroad system in this country is necessary to the life of the nation, so necessary to the life of the nation that when the men of America had to save the world from the Hun you told the man who was engaged in railroad labor he need not go to the firing line; that it was more necessary for him to stay on his job. That is how vital transportation is to the country, so we have taken a very radical step in the labor world in this bill.

I am not surprised that labor leaders have criticized it. It would be strange if they had not when first written in this

bill and before the rank and file of labor had thought it out. But I think the step that the Senate has taken is necessary, not only for the protection of the American public but for the protection of railway labor itself.

I told you a while ago the provisions of this bill were reported from the Senate committee, 15 men voting, by a vote of 14 to 1. A motion was made in the Senate to strike out the labor provisions and was defeated by a vote of 47 to 25. Now, that may not mean much to you. Labor is a very powerful factor in politics, and labor leaders had come before the committee of the Senate and absolutely rejected the provisions of this bill. The Senators of the United States are elected to office by labor as well as by farmers and business men, and they are slow to defy the mandate of a great class unless they feel sure that they are right. And by a vote of 47 to 25 they refused to strike out of this bill its labor features. Now, I think, whether you represent labor or capital or the public, that that should give you cause for consideration. Why, I see men in this audience whom I have known for 35 or 40 years—men who have represented the great labor interests of this district. I don't think that any man there can say, although I have not always agreed with them, that my general attitude against labor in this district has been unfair. Six years ago, when I was a candidate for the Senate, I had some splendid endorsements from the very men who do not agree with me in this position.

#### The Precedent of 1916

Yet I want to make a confession to you. I am probably more responsible for the labor clause in the Cummins bill than any man in the Congress, because I first proposed it in the Senate. When the Adamson bill came before the Congress in 1916 it came there to avoid a great railway strike. The labor and the representatives of the railroads—I won't say labor and capital, because capital had little to say about it; it was the management of the railroads and the labor—could not agree. The President was appealed to and he could not bring them together, and, finally, labor itself asked the Congress to solve the problem by federal statute. Now, some people deny that. One of the leaders of the brotherhoods in my office a week or two ago denied that proposition. "Ah," he said, "but they had not done so officially"; that they had not officially asked the Congress of the United States to solve this problem by a statute; that there was nothing on their books to authorize such action. I said, "Mr. Wills, you came into this office and asked me to vote for the Adamson bill, and a committee from the Birmingham district representing railroad labor came to Senator Bankhead's office, met Senator Bankhead and myself and asked us to support the Adamson bill. We did not ask you for your credentials as to whether you had passed a resolution in your organization to favor the Adamson bill, but you told us that you were the representatives of the four brotherhoods, and you asked us to vote for it. Were we not justified in presuming that your organization was for it?" If they had not stood for it, and if the President of the United States had not asked for it the Adamson bill never would have become a law. What did they ask for? They asked for the government of the United States to fix the rate of wages and the hours of work. It came from labor, and it was going their way.

When men make a precedent they can not deny it. They must stand by their own handiwork; and if there are any railroad men in this hall to-night—I know there are—you know that every word I have just uttered is true. You were right in asking for it when a strike became inevitable. The peace and the happiness of the nation were threatened. There was nothing that could save it but the government, and the time had come when the government should function, and it did function. But I knew then that the Adam-

son law did not solve the problem; I knew then that if the final decision of governmental authority was right as a temporary expedient, it was right that the government should fix the rates of wages whenever and as often as the disagreements between management and employees became irreconcilable. I knew that we members of Congress knew nothing about the real equation involved. How did we know, with the many duties that we have to perform, whether the particular rate of so much per day paid to the man who sits in the engine cab was just or fair or not? The solution of that question requires an expert board, careful deliberation and consideration, and I proposed, when the Adamson bill came to the Senate—this is why I say I am primarily responsible for this proposition—when the Adamson bill came to the Senate I proposed in the committee on interstate commerce that the Interstate Commerce Commission in the future should fix the rate of wage and hours of work of the labor engaged by the great railroad transportation companies of America, and it was favorably reported to the Senate by the committee; and then, although Congress passed the Adamson bill, it got cold feet. It got scared, and when it came to the water jump it would not go over and rejected my amendment, and I only got 14 votes for it at that time.

Now, that is where this whole thing started, and that idea has grown and grown until it has been passed by the Senate by a vote of 47 to 25, and unless the conferees or the House of Representatives rejects it it will become the law, and if it becomes the law it will be obeyed. Make no mistake about that, the law will be obeyed.

#### A Nation-Wide Railway Strike

A few months ago we were facing a nation-wide coal strike. It looked as if there was no way out. One hundred and ten million people in America did what? They appealed to the President, to the government, and the government settled it. There was no permanent law on the statute books for it looking to the particular settlement, but it was worked out, partly under a war-time statute and partly through intervention by the administration. You are in a coal district. You may not have been alarmed, but how about the many hundreds of thousands of householders in America, when that strike was threatened, who thought about winter coming on, the wife and the little ones by the fireside without coal to carry them through the winter? No fault of theirs. They had nothing to do with the determination of the question whether it was just or unjust; but yet, because one set of men said that this shall be done, and the other set of men said it shall not be done the great mass of the American people were to be made to suffer. That is the place where government should function. Government is organized for the purpose of protecting the great mass of the people who live in a community from the arbitrary act of any one class. In this country years ago, when capital was disposed to combine and organize the so-called trusts to control the commerce of the American people, the government, representing the people, stepped in and passed the so-called Sherman law, and to capital the government said, "So far and no farther." There have not been so many men sent to jail, but there has stood the signboard on the road, and every man has known where he must stop in the public interest.

Whenever a class arises in this country where caste and class are out of place, whenever a class arises in this country that threatens the life and the peace and happiness of the American people, whether it be capital or labor, or any other class, then comes the time that your government must function, and your representatives in public life who fail to stand up and do their full duty are recreant in their duty to the public and traitors to the cause of the people.

I say I am responsible for this provision of this bill—I

mean its main feature—and I think it is just not only to the public but to labor. Labor has appealed to me many times in the past 24 years to vote for things they wanted, and I have most of the time supported their problems because I thought they were just.

There is a good deal of remedial legislation on the statute books that the railroad men of America have proposed and wanted that I proposed in Congress for them. So that I did not approach this subject adverse to them, but I approached the subject in an effort to do what was just both to them and to the American public.

This bill is not unjust to American labor in the railroads. Under its provisions it says that any two men or more engaged in railroad business shall not enter into a conspiracy to interfere with interstate commerce. It is not applied exclusively to men in the railroad business; the law says any two or more men shall not conspire to interfere with interstate commerce. That includes capital. Two or more general managers can not do it. Two or more men of the public can not do it. Two or more men of the public not connected with the railroad could go out here and oil the track to stop the running of trains, and they would be in violation of the law, or if two or more men engaged in the railroad business as employees conspired together that would be in violation of the law. It relates to everybody.

#### The Right to Quit Work

Now, I think that law is just, provided that in taking away the weapon of labor to battle upward you give labor something else to take its place. We did take away one weapon of labor to battle upward, but I want you to understand that for that antistrike provision we gave them something else in its place. That antistrike provision says that two or more men shall not conspire against interstate commerce, but it says that nothing in this act shall be construed to prevent any man from quitting his employment. There has been a good deal of talk about this bill taking away the personal right of men and making slaves of them. The act itself expressly negatives that position. But there is a very great difference between a man quitting his employment and striking. Quitting employment is a matter of personal liberty. It is a matter of personal right, a matter of personal freedom, but to strike means just what it says. It is a weapon of offense; it is a blow directed at the other man to accomplish a purpose. Quitting work is not all that is wanted in a strike, for somebody else takes your place. You want higher wages, fewer hours, or something else, and you exercise the blow to force the other man to come to your terms, just as you make use of a blow if you are in a personal combat on the street. That is what strike means. It is not an act of personal liberty, personal protection, individual rights; it is the big stick used against the other fellow. It is a joint or social action falling within the domain or functions of government where the results of the action directly affect the public welfare.

#### Universal Railroad Strike and the Public

Now, my friends, what does a universal railroad strike mean? It ceases to be a blow directed against capital, because, although capital may lose dividends for three or four months while labor is out on strike, that is infinitesimal compared with what is going to happen to the public. The owners of the railroads may lose a few dollars. Railway investment may lose the earning capacity in 90 days of a fourth of its dividends for a year. What does that mean? But little. It is an operating expense that will be paid in the end by the public. But a universal railroad strike for 90 days in America is directly aimed at the American public. A strike for 90 days means idle factories and foundries, men out of employment, women without food. A



strike for 90 days means that the milk trains have ceased to go into the great cities, and the infants are dying in their mothers' arms. A strike for 90 days means that the whole business life of the nation has ceased to function, and panic and disaster stalks in the land. The blow is not directed against capital. It is directed against the public to coerce the accomplishment of a result that the public, unorganized, has no power to control.

My friends, you who have spent your lives at the throttle of an engine, or as a conductor of a railroad train, tell me, if you produce that result in the Birmingham district, how long you could live in this district? Just think about it a minute. Suppose you deliberately, through your organizations, brought on a 90-day strike; assuming that your cause was perfectly just, that you were asking for higher wages and you were entitled to them, and you could not get them out of the railroad management, and because you could not get them out of the railroad management you brought on a strike for 90 days and paralyzed the business life of this nation and had infants dying in their mothers' arms and men starving for lack of food, how long do you think the public, your neighbor, would stand it? Before the 90 days were out there would be blood in men's eyes and the governor of Alabama would have his troops in Birmingham protecting your homes and your lives if you brought about that result, and you know it as well as I do.

#### Protection to Labor

I tell you that the provisions of this Cummins bill is the greatest protection that American labor has ever had offered it. American labor can not strike against the American public. More than that, think what it costs you. Let me ask an engineer or a conductor in this audience who has served a great railroad system for 20 or 30 years, and, by hard, faithful service, has finally become the engineer or the conductor of the fast mail. He runs out his 100 miles or his day's work in five or six hours. He makes the best wage on the road, or approximates it. He has earned his position for peace in life by labor. His position is just as much an accumulation of that man's time as if he had been a banker and saved his interest and invested it in property. He has invested it in good character and good service and has won his position, and you young, hotheads bring on a universal strike, scrap the whole business, and throw him out of employment; and then this man who is 60 years of age, maybe, after 30 years of service, must he go out and begin all over at the tail end of a freight train and lay on the sidetracks all night waiting to come home, and do the work over again that he did as a boy? And, if you are a youngster, when you get 30 years older do you want the accumulation of your 30 years to mean nothing more to you than that it can be scrapped overnight? That is what a universal railroad strike would mean to you. That is what the labor chiefs have asked you to maintain as a system. It is an impossible system, an impractical system, where it is a blow directed not against capital but against the American public.

Now, what have we proposed? What did I propose in 1916? Not that capital can exact the last hour of work from you, not that capital can enforce unjust conditions upon you, but that a board representing the government of the United States must hear your complaint at any day and reach a just determination as to what is fair and just to you and the public. That is what I proposed in 1916. And what does this bill propose? I did not suggest any penalty clause. I do not think the penalty clause is necessary, but I see no objection to the penalty clause, because I do not think anybody has a right to interfere with the transportation of interstate commerce. The public is too vitally interested. I do not care whether you are engaged in rail-

roading, whether you are a general manager, brakeman, or the outside public, the penalty clause is not necessary, for once you have a government board to adjust wage scales and working conditions of railroads in America the strike is necessarily gone, because you can not strike against your government.

#### Common Sense

Labor is possessed of just as much common sense as other people. When this Cummins bill first came before the Senate all four brotherhoods came before the committee and protested, and Mr. Gompers came with them. I have known Mr. Gompers a good many years. Mr. Gompers always goes with his crowd. That is very natural. Twenty-five years ago when I first knew Mr. Gompers he was pretty radical. I had many occasions to talk to Mr. Gompers during war times, and he was quite conservative. Men get more conservative as they grow older. Now, Mr. Gompers came before the Interstate Commerce Committee and I cross-examined him on this bill. He said that he was opposed to the penalty clause, because it took away a personal right from these men. I differ with him because I do not think there is a personal right involved. The right to hit another man in the head is not a personal right. The right to quit is guaranteed by the bill. But I said, "Mr. Gompers, if we leave out the penalty clause of this bill, are you in favor of a government board fixing the wages?" He said no, he was not, because you could not strike against a government decision. He was right. You can not. Then I said, "Mr. Gompers, can you tell me some other way by which we can avoid a universal railroad strike in this country, and all the disaster that will follow in its wake, other than the method we have written in this bill?" He said no, that there was no other way. He did not believe this would, but he had nothing else to suggest. In other words, he proclaimed the doctrine that in this great Republic the force of capital or the force of labor must prevail and the battle field must be over the homes of America. That was in August. Last week the press dispatches said that the position of Mr. Gompers and the representatives of the four brotherhoods, in issuing their statement about this legislation, was that they were opposed to the penal features of the bills, but were prepared to accept the remedial part of the legislation, and asked that the legislation be extended to Pullman-car conductors, who had been unfortunately left out. What are the remedial features of the legislation? So far as the Senate bill is concerned it is that if there is a dispute as to wages or working conditions each side may select a certain number of arbitrators—five, I believe—and they shall try to agree.

If they agree, then that settles the difference. If they can't agree, then the question shall go to the board of transportation, a government board appointed by the President, and the board of transportation shall finally determine what is a just wage or what are just working conditions. Those are the remedial features of the bill. Instead of the board of transportation that is created by this bill, in 1916 I proposed the Interstate Commerce Commission, in principle the same. This is a very great change from the testimony that was presented before the committee. If that statement correctly presents the attitude of the labor leaders, is not that a change that has reflected the sentiment of the great mass of railroad workers of America, who want only what is just and what is right? I think it is. I think it is. Now, let me tell you: If you have a board, if this legislation goes through and you are not satisfied with your wages or working conditions, you, as an individual, if you are engaged in railroad employment, can carry the question to the board of transportation. Or if you belong to the labor union, your union can demand arbitration, and if arbitra-

tion is not worked out satisfactorily, your union can carry it to the board of transportation and have it determined in a peaceful, orderly way and dispose of the question, and you will not lose your job. Well, if you have those remedial features, what care you whether there is a provision in there that no man shall conspire to interfere with interstate commerce? While you sit in the cab of the engine, do you want some fellow to conspire to interfere with interstate commerce in a way that may throw your engine in the ditch?

### The Public Pays the Bill

Since the war began the cost of running the railroads of America, as shown by the report of Mr. Hines, checked up by the Interstate Commerce Commission and its experts, has been \$1,835,000,000 more than it was before the war started. Railroad capital has not paid that. It could not. Why, \$1,835,000,000 is more than the railroads ever paid out in interest on their bonds and dividends on their stock in any one year of their existence. Some people say that this increased cost of wages and material ought to come out of the railroads. Of course, the man who says that is an anarchist. He wants to destroy the property. It could not come out of the railroads. One billion eight hundred million is nearly two billions of dollars. There are but eighteen billions of dollars engaged in the railroad business. Divide two billion into it, and it would take nine years for you to eat up all the capital that is invested in railroads, if it came out of capital. At the end of nine years you would not have anything left.

But, more than that, you can't take it out of railroad capital, because railroad capital has got to exist. If the L. & N. Railroad went broke the capital would remain, and the government would make you sell it to somebody else that would run the railroad. So you can't absorb railroad capital. Where does it come from? It came out of the public. Freight rates were increased 50 per cent and passenger rates were increased 25 per cent, and the public pays the bill. And who got it? One billion seven hundred and seventy-five millions of dollars of that increase went to labor, as shown by Mr. Hines report, and since that report came out another hundred million was absorbed in the adjustment of some minor matters. So that, in fact, the railroad labor has absorbed the entire \$1,835,000,000 of increase in the cost of transportation. The next greatest item of cost to a railroad is coal. Before the war came on the railroads were buying coal at an average of \$2.10 a ton. To-day they are paying \$4 a ton, and one time it went up to \$4.20 on an average.

Before the war the railroads were buying steel rails at \$30 a ton. At one time during the war they got up as high as \$57, and to-day they are selling for \$47 a ton. Now, labor has absorbed all of the increase that the public is paying, and yet there is a further increase in the cost of coal, rails, oil, lumber, and everything else it takes to run a railroad. The railroads are very much worse off than they were before there was any increase in freight and passenger rates.

### Double Charge Against Public

Now, labor is asking another billion dollars. From whom? Capital? No. Capital can't pay it. Nobody for a minute contends that capital can pay it. They are asking it from the public, the farmer who ships his cotton to market, the pig-iron man who ships his ton of pig iron to Boston, the grocer who is shipping his food to your house. Is that all it is costing you? In the debate in the Senate on this bill I heard it asserted that when you increase freight rates \$1 that by the time that increase got to the consumer it amounted to \$5. I think that was an exaggerated statement, and I don't stand for it; but that was asserted. But

it certainly does increase the cost of commodities more than the increase in freight rates, because when the producer sells the raw material and ships it over the rails, the man who buys it, the manufacturer, adds the freight and the cost of the raw material together, and then multiplies his profit into it, whether it is 10 per cent or 25 per cent. When it gets to the jobber, he adds the cost of the goods and the freight together and multiplies his profit into it, and when it gets to the wholesaler he does the same thing, and the retailer does the same thing; and that profit runs all the way from 10 to 100 per cent. So I think you are safe to say that for every dollar of increased freight rates you put on the American people, whether you do it for labor or capital or anything else, you put a charge of \$2 on the pockets of the American people when they come to consume it. When you put a dollar of freight on the food of the American people, you charge the American consumer \$2 out of his pocket at least. As I say, some people asserted it was five times as much, but I think that is an exaggerated statement. Well now, if it is twice as much, then the charge that has been put on the American public for the increased cost of labor on the railroads is not \$1,835,000,000, but is \$3,670,000,000, and if you put another billion dollars on that for labor that they are demanding now, that is \$2,000,000,000 more that the ultimate consumer of the American public has got to pay for, and that would be \$5,000,000,000 since the war began as the price of increased labor on the railroads that the American consumer has to pay for. How are you going to get down the cost of living?

I am not in favor of cheap wages. It is a mighty good thing for any community and any public to pay labor as good a wage as it is possible without destroying business, because the wages of labor are always spent in the community to build it up and encourage business. But there is a line that you have got to draw. When you go with wages beyond a certain limit, business ceases to function. When you go beyond the limit, your producer or manufacturer that can not go into a competitive market and sell his goods at a profit then ceases to work.

Now, those are all the problem that you have got to solve in this great equation, with the life of the public involved. And as your representative in the United States Senate, do you want me to stand for the problem of solving that question on the battle field of a great strike, where force and anger and discord sit at the judgment seat, or do you want me to stand for the problem that a high court of governmental justice, a board appointed by the President of the United States, representing the best interests of all people of the United States, shall sit in judgment and decide the equation for you justly? That is what I have done, That is what I stand for.

## Committees to Prepare for Return of Roads

**D**IRECTOR GENERAL HINES has appointed the following committees to arrange details connected with the transfer of the railroads to private operation March 1, and also to recommend the machinery necessary to liquidate the federal administration:

Liquidation Committee.—Chairman, John Barton Payne; Messrs. Powell, Sherley, Spencer, Underwood.

Committee on Claims.—Chairman, T. C. Powell; Messrs. Prouty, Tyler, Underwood.

Special Committee to Confer with Corporations in the Matter of Interest on Additions and Betterments.—Chairman, John Barton Payne; Messrs. Powell, Prouty, Sherley, Underwood, Parker.



# Measures to Reduce Overtime in Train Service

Circular Issued by Director of the Northwestern Region Gives  
Valuable Suggestions to Cut Costs

**R.** H. AISHTON, regional director of the Northwestern region, issued Circular No. 95, on January 8, calling attention to the fact that the granting of time and one-half for overtime to train and enginemen in all classes of freight service will greatly increase the cost of conducting transportation unless steps are taken to avoid overtime wherever it is possible to do so. The circular includes a list of 12 suggestions on the handling of trains, perfecting the organization and increasing facilities which will tend to avoid many delays in train movement. These suggestions seem so pertinent, are expressed in such concise language, and constitute an excellent code of practice, that they are published in full below:

Effective December 1, 1919, under the provisions of Supplements 24 and 25 to General Order No. 27, time and one-half for overtime has been granted to train and enginemen in all classes of freight service, including mine-run and transfer service.

Heretofore time on duty in excess of the established number of hours constituting a day, or when on a mileage basis, time on duty exceeding the number of miles divided by 12½, has been considered a penalty to be avoided, when possible, under normal conditions, but has had no financial significance when the service performed was equally as valuable as that furnished within the normal hours before overtime accrued, taking into consideration the fact that the overtime rate was pro-rata. However, with the payment of a punitive rate for overtime, it is manifestly essential that a careful study be made of operating methods and facilities, to determine whether the service performed on a punitive rate basis is sufficiently valuable to the railroads to warrant the working of men in excess of hours in which service can be required at the single time rate.

This question involves many problems that will require most careful analysis, and the adoption of improved methods of operation for the purpose of accelerating train movement. The following suggestions are made in connection with the study of this question:

1. Trains should not be ordered until it is known that they can depart at the specified time.

2. So far as practicable start trains from terminals at a time when movement will meet with the least interference by opposing or superior trains. Investigation at different times has shown that yard forces order trains to depart from terminals at times when opposing or superior trains will cause delays in departure from terminals and further delays en route. More close co-operation should exist between train dispatching and yard forces to avoid this condition.

3. Solid trains should be made up for terminals of the various freight divisions, instead of being made up in such manner as to require frequent stops to set out cars en route. No doubt lack of facilities in a great many cases will prevent the holding of cars sufficient length of time to accomplish this, but reports from inspectors reaching this office show that a great deal more of it can be done than has been done with the existing facilities.

It is well known that delays to cars waiting for solid trains in reality advances the movement to final destination, and avoids the expense incident to frequent switching, and which also adds to the possibility of damage to equipment.

4. Train dispatchers should keep yardmasters fully informed of trains en route so that arrangements can be made to relieve crews promptly on arrival at terminals, thus avoiding the payment of final terminal delay or overtime.

5. It has been demonstrated that the best showing is made on penalty time when the setting out and picking up of cars over a division is confined to the fewest possible trains that can properly handle the work. An unnecessary number of trains picking up and setting out cars between terminals is reflected in the movement of all trains. Careful study and the adoption of

proper methods will confine delays to through trains between terminals, to clearing superior trains, stopping for coal and water and delays incident to the proper care of equipment.

6. Hostlers preparing engines for the road and placing them on the trains.

7. Discontinuance of the requirement that conductors check trains, secure waybills, etc., at important terminals. Efficient yard organization can be provided to do this work at much less cost than is involved in the delay incident to the work being done by conductors.

8. Increased supervision on the part of all division officers, but particularly by trainmasters and road foremen of engines, is of primary importance, and where there are not sufficient trainmasters to provide proper and complete supervision, additional trainmasters should be employed to devote their entire time to the supervision of train and yard operations.

9. Loading of merchandise cars for the various way-freight districts. Without doubt this will develop that freight trainmen are loading and unloading tons of freight which could be handled by other employees at a less cost. In determining this question, first consideration should be given to the prompt movement of merchandise, economical use of equipment, empty car haul, and reasonable tonnage per car.

10. The question of accelerating train movement is one which cannot be determined without an exhaustive study of practically every operating feature. While it is understood that good judgment will be used in rating locomotives, it is not expected that any reduction in tonnage will be made at this time, but instead the efforts of division organization should be concentrated on the elimination of delay which, after the last analysis, is the cause for overtime. Records indicate that some railroads showing the heaviest tonnage per train also show the highest speed per hour in train movement, which is entirely due to the operation of the greatest possible number of solid through trains, elimination of terminal delays and delays en route.

11. Granting time and one-half for overtime made possible the elimination of certain arbitraries and special allowances to train and enginemen in freight service at initial terminals and en route. Division officers should thoroughly understand that the elimination of the payment for these special allowances and arbitraries does not contemplate that there will be any increase of work heretofore performed at terminals or en route, and just as great attention should be paid now as heretofore to the elimination of initial terminal delay and work en route not incidental to the trip.

12. Additional or improved facilities involve consideration of:

(a)—Adequate enginehouse facilities, including in and outbound tracks, cinder pits, coal and water stations.

(b)—Running tracks between enginehouses and yards.

(c)—Installation of air-testing plants in all yards of any importance to insure that when an engine is coupled to the train, the air brakes will be in working order, and the regulation air brake test can be made without delay, thus eliminating delays which now occur by necessity of setting out cars on account of defective air-brake apparatus.

(d)—Extension of yard tracks to hold an entire train, and the extension of yard facilities to permit the accumulation of cars for solid through trains.

(e)—Extension of passing tracks to proper length to hold one or more trains, the lack of which now makes necessary the backing over in double-track territory to clear superior trains, and with the consequent interruption of traffic on the opposite main line.

(f)—Extension of second tracks in and out of terminals to permit prompt clearing of main lines.

These are, of course, only a few of the more important items for consideration in the question of minimizing punitive pay-

ments for overtime. I would urge that during the remainder of the period of Federal control, the efforts of yourself and other officers be effectively directed on the above and such other lines as may occur to you.

## The Prevention of Loss and Damage

By A. C. Kenly

**T**HE PREVENTION of loss and damage to less than carload shipments of freight, like all other problems, is comparatively easy, when attached on the right lines. It is simply the question of shippers, consignees and carriers "toting fair." The trouble in the past and even now is that each class is more or less inclined to "pass the buck," which means, usually that the carrier comes hindmost.

Toting fair means that shippers, consignees and carriers have certain duties and obligations to perform; briefly they are as follows:

(a) The proper and secure preparation of each article shipped, individually, in bundles or in containers. It is to be borne in mind that under modern transportation, based on speed, long trains and heavily loaded cars, there must be more or less of what is termed "rough handling"; and this in an increasing ratio as the journey is lengthened.

(b) The distinct and legible marking of each separate piece, bundle or container with full name of consignee and destination. Shippers should also show their name and address, preceded by the word "from."

(c) The obliteration of all previous shipping marks.

(d) Clear and legible bills-of-lading.

(e) Careful checking of pieces or packages when being loaded on trucks, to catch possible errors. For instance, a shipper may have ten bags of oats and ten of corn for two different consignees at stations on different roads (or the same road) but sent to station in different truck loads. There is a chance of one or more bags of oats being mixed with the corn and vice versa. The error may not be detected at the freight station. Many shippers would be astonished if they knew how often substitution mistakes occur in their own loading.

### Carriers

(a) Should provide a sufficient and efficient force to properly transact the business of each agency. This includes competent receiving, loading, stowing, billing and delivering forces. When you take into consideration that the receiving and delivering of freight, the foundation of transportation is conducted through the station agent's forces, you would, naturally think that railroad managers would consider it of the most vital importance to properly equip each station with adequate man power and mechanical appliances. If all agencies were properly equipped, we should probably see material reductions in the clerical forces in claim department and other general offices.

(b) Train crews should be required to carefully handle freight in unloading way cars; and also be required to readjust the freight left in cars, after each partial unloading, so it will ride safely.

(c) Destination agents should check freight as received from cars; keep shipments for various consignees together and carefully check every piece of freight as delivery is made.

### Consignees

Should bear in mind that carriers cannot, no matter how hard they strive, give perfect service. They should frankly acknowledge and accept the fact, that miscellaneous shipments must necessarily be loaded together in the cars, and that it is an impossibility to avoid some damage: and when the damage is slight, such as the loss of a small percentage of contents of a torn sack, or slight scratches on fur-

niture, which they can easily remedy; or other trivial damages, they should accept them as being incident to transportation and not make petty claims.

The chief cause of partial loss of freight from and damage to freight shipped in containers, is the faulty container. Eliminate the improper container and you practically eliminate claims for damage and partial loss. Do carriers fully realize what that means to them? Not only a large reduction in claim payments, but also in their claim forces, with possible reduction in other forces due to decrease in claim investigations and the correspondence incidental thereto.

The elimination of the improper container means the substitution of the proper container. Here is my suggestion to carriers: The appointment of a committee consisting of say, five men; the committee to sit continuously. After deciding on the proper container or containers for each individual commodity or group of commodities, the committee should give detailed specifications as to the making of each container; how it should be closed after filling and how secured; and when necessary prescribe how the contents shall be packed. Photographs or drawings of the container in process of making and after being closed and secured, should be added as guides to shippers. The committee should take up, first, one or more of the articles now producing the most claims; for instance, goods shipped in sacks. Its method of procedure would be as follows:

It would call into consultation the manufacturers of sacks (who would be expected to bring samples of their sacks) shippers and receivers of sacked goods and carriers. Thoroughly discuss the required characteristics of the proper sack for each individual commodity. When goods are shipped in sacks containing varying quantities, then the proper sack for each unit of weight would be considered. If agreement cannot be reached by all interested, then the committee should sit as arbitrators. The committee would then promulgate its detailed specifications covering each style, size or type of sack adopted, including its weight, tensile strength, number of threads to inch, size of thread, articles to be shipped in it, weight, limit, and so on. Photographs or drawings would accompany the specifications. The specifications would then be put in the classifications and should become legal and binding.

Specifications covering wooden containers would describe the character of wood to be used, and then its thickness, the number and size of nails to be used and their location; and the number, position and character of straps to be used. Containers made of other material would be similarly specified. The committee should avoid trying to handle too many commodities at one time.

There is no reason why this committee should not prescribe general loading rules for l. c. l. shipments, also loading rules for carload shipments.

Carriers should establish a joint bureau to enforce all approved container and loading rules. Its inspectors should visit manufacturing plants to inspect containers in process of manufacture, should visit shippers to see that packing is properly done, that packages are fastened and marked, and that legible bills-of-lading are made. They should look into the receiving, loading, stowing, billing and delivery methods at stations and ride on local freights to observe how train crews handle, check and trim freight, reporting to head of bureau all violations observed. They must be live, hustling men, brimful of helpful suggestions and constantly animated by contagious enthusiasm.

One of the major troubles today is the lack of uniform enforcement of the specifications and rules already embodied in the classifications; therefore, it is hardly necessary to say, it would be useless to appoint this committee unless ample provisions were made for enforcing its findings.



# Long Life for Creosoted Piles in Railroad Trestle

## Thirty-five Years of Service Affords Conclusive Demonstration of the Value of Treatment

**W**HEN THE LOUISVILLE & NASHVILLE built its bridge across the Ohio river at Henderson, Ky., in 1884, it constructed a pile trestle approach on the Indiana end in which 177 of the bents were of creosoted piles. All of these piles remained in service until 1917 when steps were taken to renew the trestle and some of them were not replaced until late in 1919. In other words, these piles had a service life of 35 years. This service period by no means represents the total average life of the piles since other considerations than the physical condition of the piles required the renewal of the structure at this time. As a matter of fact, only 15 per cent of the piles were in a state of decay that



Characteristic Rot in the Five Per Cent of the Pile That Decayed at the Ground Line

would demand their replacement. Aside from the demonstration of the value of timber preservation afforded by this structure, a careful study of the piles removed also serves as an excellent lesson on the use of good material, thorough treatment and painstaking, high-grade workmanship.

The record afforded by this structure is particularly conclusive because it was made during the service of one man, A. B. McVay, supervisor of bridges and buildings for the Louisville & Nashville at Evansville, Ind. Because of the particularly convincing character of the evidence presented in this demonstration of the value of timber preservation, it is fitting that some study be made of this structure and such details as could be ascertained concerning the treatment, character of the timber and methods followed in the construction as might possibly be interpreted as having some influence on the record secured.

The Henderson bridge trestle is about three miles long and all except 177 bents were driven with untreated timber. A large part of the structure is level, with bents from 14 to 18 ft. high, but for some distance near the river bridge, the grade rises on a 1.25 per cent grade, so that the height of the bents in the portion driven with treated timber runs to as much as 40 ft. Four-pile bents were used throughout, with panels 15 ft., center to center of bents, notwithstanding the fact that a considerable portion of this part of the trestle is on a 2-deg. 30-min. curve. The piles were treated in 1883 and driven in the spring and summer of 1884. Creosoted caps 10 in. by 14 in. in section were used,

but the bracing and deck were of untreated timber. The piles were driven in typical river-bottom alluvial soil in a location normally above water level, but subject to overflow at times of high water in the river.

The deck was renewed in 1896, at which time the caps were replaced by cypress, while all of the untreated bracing was renewed in kind. In 1915, 12 of the original piles were replaced because of decay, and in 1917 it became apparent that about 15 per cent of the piles were in a condition that called for early removal. This consideration alone would not have justified any procedure other than piece-meal replacement of the defective piles, but for certain other complicating circumstances. The four-pile bents, many of them over 30 ft. high and located near the curve, were affording too small a factor of safety for the increased train loading. With 15 ft. panel lengths, the idea of adding additional piles to the bents was not deemed feasible because of the greater expense for heavy stringers required to obtain the desired factor of safety in the chords.

Because of these considerations, renewal of the treated portion of the trestle was authorized in 1917, 221 new 6-pile bents being required. That year 73 of the old bents were replaced by 88 new 6-pile bents spaced about 12 ft. on centers. In 1918, 42 more new bents were driven and the rest



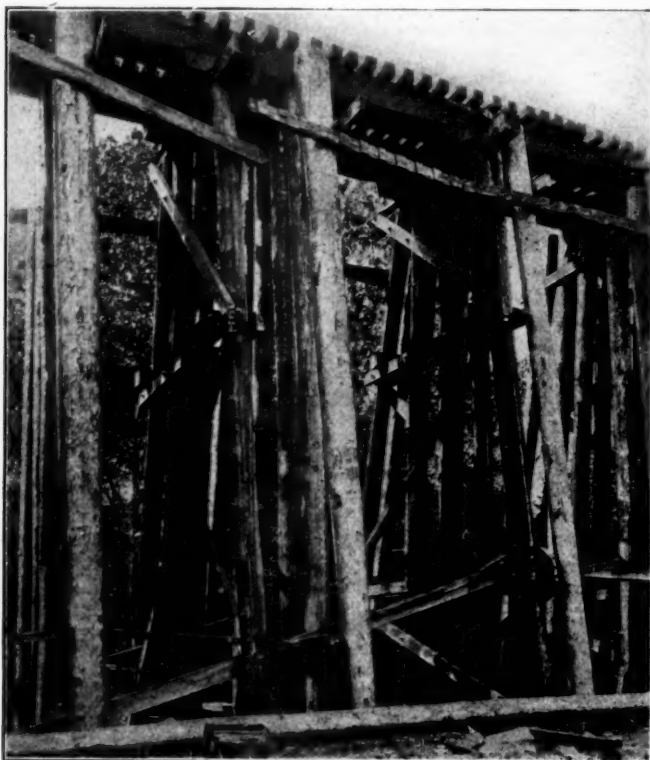
Manner of Chamfering Piles to Reduce Diameter

in 1919. Simultaneous with this work the existing open deck was replaced by a timber ballast deck.

An examination of the old piles renewed shows that the treatment was excellent. They were creosoted at the Louisville & Nashville plant at Gautier, Miss., under the direction of the late J. W. Putnam, but no record of the exact nature of the treatment is available, although the depth of oil penetration would presume a heavy and extended period of steaming. Of the piles evidencing any decay, very few

had decayed butts. This was, no doubt, the result of special precautions taken to protect the heartwood of the piles which had been exposed by cutting off the butts to receive the caps. In the first place, the pile butt was completely covered by the cap in nearly all cases. A cap 14 in. wide was partly responsible for this, but the really effective measure was an artificial reduction in the size of the pile butt (where necessary) by adding it to an octagonal prism of about 14 in. on the short diameter. This was done *before* treatment. After each pile was cut off two holes were bored in the top and filled with hot creosote oil which was also coated thoroughly over the top of the pile.

Only about 10 per cent of the piles requiring renewal showed serious rot at the ground line. The most serious cause of decay arose from a practice pursued when the bracing timbers were renewed in 1896. In a misguided effort to get good bearing for the braces, many of the old piles were adzed deeply, exposing the less heavily treated material.



New Piles Driven to Replace Old Ones in Place for 35 Years

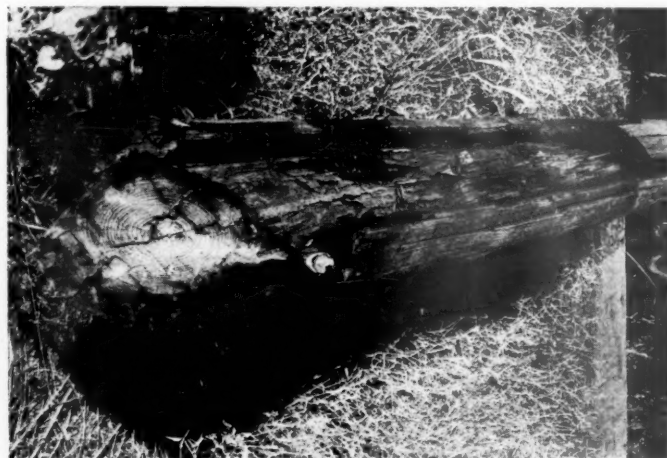
Some decay also started around bolt holes, although the holes for fastening the original bracing were, for the most part, carefully plugged at the time that the bracing was changed. The characteristic rot at these places consists of a small opening leading into a cavity of appreciable size in the interior.

An interesting comparison is afforded in this structure by the fact that all of the trestle that was not constructed of the creosoted piles was driven with red cedar piles that gave a life of about 18 years. All renewals of these cedar piles were made with untreated pine piles that have since been renewed at least once, so that the creosoted piles have given more than twice the life of the untreated wood. The long life secured from these piles is clearly the results of the use of good timber, correct treatment and a careful regard for the detailed precautions necessary to insure a continuity of the shell of protected timber on the exterior of the pile. Eventual decay, where it occurred, was in most cases the result of a failure to secure absolute perfection in this regard. It is entirely clear that the small percentage of piles requiring renewal at the present time would be even smaller than it is

but for the unfortunate cutting of the piles at the time that the braces were renewed.

#### Other Examples of Long Life

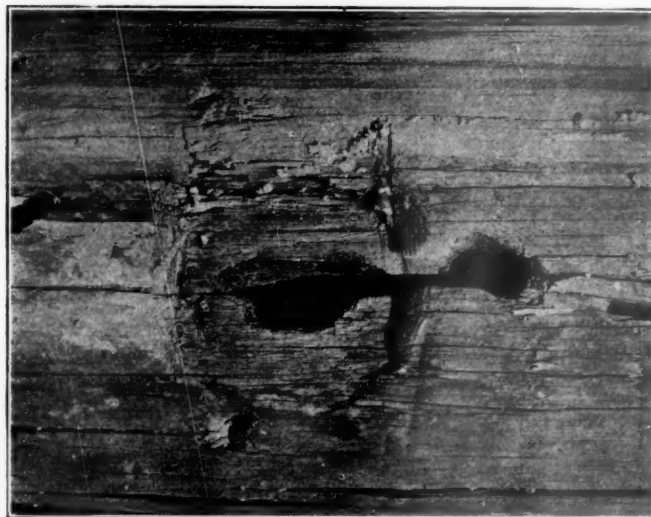
While there is probably no other single instance that shows an equally complete record, there are many other examples of long life for treated piles on the Louisville & Nashville, notably along the Gulf coast, where this road was the pioneer in the treatment with creosote in an effort to stop the destruc-



How the Piles Were Improved by Sizing Them for Braces

tive action of marine borers. While it has been found that treatment with creosote is not an absolute protection against this difficulty, although it is an unquestioned deterrent, the creosoted piles have demonstrated a most remarkable life in their resistance to decay from normal atmospheric influences.

The Louisville & Nashville has 10 structures over salt water between Mobile and New Orleans, where the teredo is more or less active. The borers are active in the waters of the Pascagoula river, Biloxi bay and Bay St. Louis, which



Rot Around a Bolt Hole

are crossed by long creosoted pile trestles having drawbridges, and in one case fixed spans on pile piers.

The trestle at Bay St. Louis contained about 3,600 piles driven in 1879. At the present time 90 per cent of these piles are still in service, but, of course, protected against the teredo. In 1908, 60 new bents were driven in this trestle on account of settlement of the old bents, but none of the old piles were decayed. The trestle between Biloxi and Ocean Springs contains 1,200 piles driven in 1878. No record of these removals



could be obtained, but the proportion of removals has not been greater than 10 per cent.

These two bridges originally had bents of four piles each, but in 1912 longer caps were put on top of the old caps and two piles, one on each end of the bent, were driven, to give greater bearing power for heavy traffic.

Because of a fire which destroyed a large portion of the records of the Louisville & Nashville, it is impossible to give a detailed record of all the piles in these structures. The following, however, is a complete statement concerning 5,093 piles in bridges between Mobile and New Orleans driven in 1877 to 1879. After these piles had been in service some 12 or 14 years, examinations made below the water line indicated the need of some form of protection against further action by the teredo and other marine borers, as a consequence of which most of the piles have been incased in terra cotta or cast iron pipe filled with sand. This protection, however, has no bearing on the resistance of the pile to decay from atmospheric causes and as seen in the record below, 81 per cent of the piles are still in service:

Piles still in service unprotected against marine borers.....	617
Piles protected with pipe in 1892-93.....	3,513
Piles replaced in 1904, mostly because of storm damage.....	320
Piles replaced in 1906, mostly because of storm damage.....	112
Piles replaced from failure, decay and teredo—no date.....	95
Piles replaced in 1908 on account of settling.....	436

PERCENTAGES	Per Cent
Piles still in service unprotected against marine borers.....	12.1
Piles still in service protected, 1892-93.....	68.9
Piles replaced in 1904.....	6.3
Piles replaced in 1906.....	2.2
Piles replaced—no date.....	1.9
Piles replaced because of settling.....	8.6

100.0

Some speculation is naturally raised as to possible influences favoring this long life. Salt spray from storms has been suggested as possibly coating the piles with a certain amount of salt which is known to have a certain degree of toxic value. On the other hand, these piles are located in a territory of very heavy rainfall, so that this protection would be washed off frequently, while the temperature is rarely cold enough to cause freezing, so that the climate is generally much more conducive to fungi propagation than in most all other parts of the United States.

A good grade of timber, thorough treatment and high-class workmanship in construction has had much to do with the success of these Gulf installations, as in the case of the Henderson bridge trestle. All of the piles were chamfered the same as at Henderson and the tops were thoroughly coated after cutting them off for caps, while galvanized iron has been used extensively to protect all horizontal surfaces against the collection of rain water.

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Photo from International Film Service.

Armored Car in Siberia Made from an American Built Gondola Car

## Commissioner Woolley Says Return of Roads Means Higher Cost of Living

INTERSTATE COMMERCE COMMISSIONER Robert W. Woolley, one of the men who presumably will soon have occasion to pass upon an application of the railroad companies for an advance in freight rates, is still issuing statements objecting in advance to the idea of an increase, as an argument for his contention that the railroads should be retained under federal control. Mr. Woolley's position is that such an increase will be multiplied in its effect on the cost of living and he quotes Director General Hines as having said repeatedly that no increase would be necessary if the railroads were retained under federal control. In Mr. Hines' public statements he has merely stated that the Railroad Administration could get along with a smaller increase in rates than would be necessary for the separate railroad companies. In a statement given out for publication on January 12 Mr. Woolley said in part:

"When the President issued his order returning the railroads to private control on March 1, in my opinion he served notice on Congress to the effect that it would have not only to act promptly but assume responsibility to the people. Last May, he indicated to Congress that the present arrangement, speaking generally, was a mere rope of sand; that it was possible for the director general to maintain only a semblance of morale in his organization with the tenure of federal control so uncertain, and that unless Congress enacted legislation better adapted than the federal control act to effective administration during the delicate reconstruction period he would exercise the option vested in him and return the roads on January 1.

"We all know that Congress failed to function on schedule, that it would have been disastrous to the assets of the roads themselves, and incidentally, to the whole financial situation, if the return had been made without adequate new legislation. If the President had merely said he would postpone the date of return until March 1, Congress might have become even more easy-going. So, as a practical matter, it was necessary to shift the responsibility.

"But this does not alter the situation economically at all in these perilous days. As a matter of fact, it isn't accurate even to speak of them as the reconstruction period, because that cannot begin until the peace treaty has been ratified. What the American people are really confronted with, and what Congress is really dealing with, though some of its leaders seem not to recognize the fact, is, first, the danger of still higher cost of living; and second, the danger of further labor troubles and greater economic unrest. In formulating from the essence of two manifestly bad bills a measure for the permanent return of the railroads now to private control and operation, no matter how desirable such return may eventually be, Congress to my mind is doing the one thing that inevitably means higher prices and early comfort for the socialists.

"The railroad executives are prepared to file application for a general increase in freight rates. For months their press bureau has been trying to lull the people into the belief that this increase will prove a benefit rather than a hardship and a peril.

"I am informed that the measure of the increase will have to be at least 25 per cent. A few days ago, an official of one of the leading New England lines stated that the increase in New England would have to be as much as 39 per cent. Based upon 1918 freight receipts, a 25 per cent increase would mean \$875,000,000 additional which the shippers would have to pay annually. But the shipper passes this along to the consumer or back to the producer of the raw material who has to stand the cost of transportation to the primary market. He so states frankly in the cases which

come before the Interstate Commerce Commission. He makes no bones of it.

"The consumer catches an increase in freight rates in the shape of an accumulation of increases. He is bound to because he is at the mercy of the manufacturer, the wholesaler, the retailer, and generally the commission man, as to each single material that enters into a finished article, and then as to the article itself. Director General Hines stated at St. Louis last June that the ratio was five-fold. In other words, he said that if rates were increased \$300,000,000, the consumer would pay to the extent of \$1,500,000,000. An \$875,000,000 increase in freight rates would mean \$4,375,000,000 the consumer would pay. This would have an immediate effect of increasing the living cost of families of five by something like \$215 per annum.

"That fact alone is troublesome and bodes ill enough, but with the return of the railroads to private control the government releases the only peg it has for holding in place at least one end of the so-called vicious triangle, viz: the three principal elements in the cost of manufactured articles—labor, raw material, and transportation. Possibly in six months, surely within twelve months, the railroads would come back to the Interstate Commerce Commission with just as good a case as they will make on March 1, for another increase in freight rates. Where would it all end? With finances of the world topsy-turvy, with everything in the flux, who could call a halt?

"Why should this be necessary when the President stated only a few months ago that an increase in freight rates at this time would not be in the public interest and Director General Hines has said repeatedly in the past few weeks that no increase will be necessary if the roads are retained under federal control—this in spite of the fact that the coal strike and the steel strike caused the roads to fail to earn the standard return by approximately \$55,000,000 in the month of November, and that another falling short of the standard return, though of smaller proportions, is to be expected from the same cause for December? With an operating ratio of 84 per cent under federal control, due to economies possible under unified operation, but impossible with the roads severally managed, this desirable result is obtainable.

"Only a few days ago, the vice-president of one of the principal railroads in the country walked into my office and introduced himself to me. He said that he was opposed to government ownership of railroads, and that he thought the one way to prevent government ownership by January 1, 1921, was for federal control to continue until we are well over the shoals of reconstruction. He cited the fact that with little or no increase in passenger equipment the railroads were handling something over 30 per cent more passengers than ever before, that with only a moderate increase in freight equipment, including locomotives, an enormously increased freight traffic was being efficiently handled, and gave as an instance, that whereas on October 1, 1917, the freight car shortage had been 147,000 cars, it was only about 57,000 in October, 1919. He said he could foresee a car shortage and a break-down in service that might cause people to rise up and demand government ownership forthwith. It is due, of course, largely to the elimination of waste in handling cars. Today a car is at home no matter where it is, and does not actually have to move except in response to traffic demands. But under private control when a car had discharged its load, it was started back to the home line. Of course it was loaded if possible, but it went empty if there was no freight to put into it. Great Britain saw the folly of this sort of thing during the war, and by proper regulation of the moving of cars of coal alone eliminated 700,000,000 ton miles per annum, on a total track mileage of something like 26,000 miles. Consider that our rail mileage is something like 257,000 miles, and you can see what eliminating waste haulage means.

"What do those who think they can see some temporary selfish advantage to be secured by the prompt return of the roads to private operation imagine would happen in this country? Would there not be unrest in all classes? Would it be confined to labor alone?

"Let me correct an impression as to just what is occurring under federal control. The so-called standard return is the average net operating income for the railroads taken over by the government in the three fiscal years ending June 30, 1917. In two of these years, this income was around the billion dollar mark, but in one of them—1915—it was \$727,000,000. Only twice before in the history of our railroads, in 1910 and 1913, has the net operating income for one year exceeded the \$800,000,000 mark. In 1918, under federal control the operating income was \$728,000,000—a million more than in 1915, the first of the three years used in the standard return, and \$23,000,000 more than it was in 1914. With the exception of six years prior to 1916, it was higher under federal control in 1918 than it ever had been in the history of our railroads. Yet, one reads of operating deficits. There is no deficit. With the prices of materials soaring and necessitating an expenditure for maintenance of \$1,741,483,895, or \$777,247,093 more than the average annual expenditure for maintenance of the same properties in the test period under private control—for the first 10 months of 1919 the government's expenditures for maintenance exceeded those of the test period average by 100.4 per cent—, with a wage increase covering 12 months and a 25 per cent rate increase covering 6 months, the government simply failed to earn in 1918 within something over \$200,000,000 of a generously guaranteed rental, based on the returns for one normal year and two miracle years. These are facts the importance of which can not be over-emphasized in the light of the charge so recklessly and freely made by the railroad executives that the carriers are headed for bankruptcy under federal control. In 1908, the net operating income was \$115,000,000 less than in 1907; in 1914, it was \$125,000,000 less than in 1913, and this under private control. Nobody heard of operating deficits in those days. Inasmuch as these shrinkages happened under private control, they were due to economic reasons and not to mismanagement.

"With commodity traffic shrinking almost to the vanishing point after the signing of the armistice on November 11, again it takes no Solomon to prophesy that if the railroads had been under private control the shock absorbing capacity of the federal reserve act might have been tested to the bursting point to tide us over resulting financial disturbances caused by wholesale receiverships of the railroads.

"Now, of course, traffic of all kinds is moving again, and Director General Hines, the former head of the great Santa Fe system who is doing such an admirable job, is authority for the statement that the carrying capacity of the railroads is likely to be tested for at least five years to come. With this assured business in sight as a guarantee, and the statement of the director general himself that no further increase in freight rates under continued federal control would be necessary, why should Congress, representing the interests of all the American people, decree that it is preferable to incur a minimum increase of 25 per cent in freight rates as a starter and no one knows how much higher price levels.

"I am opposed to government ownership if there is any plan under private control by which the roads may be efficiently and economically handled in the interest of the public and owners of their stocks and bonds alike. In my opinion the only hope of preventing it lies in holding the roads for a period that will carry us over the reconstruction days and back to normal, when it may be possible to fix just what the measure of rates should be under private control. Meanwhile, American genius will have ample opportunity to do its best to meet the situation."



# Glenn E. Plumb Proposes Industrial Reconstruction

## Principles of Plumb Plan Extended to All Industries Except Individualistic Enterprises

Washington, D. C.

**A** POLITICAL PROGRAM for the reconstruction of the existing industrial system by the extension of the Plumb plan, or of its principles, to all forms of industry except "individualistic" enterprises owned and operated by the same individuals, has been proposed by Glenn E. Plumb, counsel for the organized railway employees, in a memorandum furnished to the press. This was generally predicted at the time the plan for the acquisition of the railways by the government for the benefit of the employees was urged before Congress during the summer, but at that time Mr. Plumb was not ready to discuss its application to industries other than railroads. The details of the application of the plan, which as worked out in the provisions of the Sims bill as applied to railroads aroused so much criticism, are not given in the latest statement, which describes the plan as one for giving the three interests, public, capital and labor, an equal authority in the direction of industry and an equal share in the benefits. Critics of the Plumb plan as applied to railroads can find no such equality in it, because capital was given no voice whatever in the direction of the business and no share in the profits beyond a fixed rate of interest, while two-thirds of the board of directors were to be chosen by the officers and employees and one-third was to represent the public interest.

In the new plan varying methods for the division of the profits and of the authority are proposed, dependent upon the nature of the industry.

The program which Mr. Plumb submits "to the consideration of the American people" as the means by which the evils of the existing system as he sees them is summarized as follows:

"First, as to railroads and all means of transportation of persons, commodities, and intelligence, the adoption of a plan for the public ownership and democracy in the control of the operation of the railroads and all such transportation facilities in accordance with the principles of the Plumb plan, with such modifications of details as may be needed to effectuate the general principles above outlined.

"Second, as to all industries based upon grants, privileges, exploitation of natural resources, and enjoyment of monopolies, the adoption of the necessary legislative policy through local enactments either to acquire public ownership of such utilities, with the extension of the principles of the Plumb plan to their control and operation, or the adoption of a tripartite representation of the public, private capital employed and labor in direction and control of such industries, with equal authority, and a division of the savings of efficiency between the public, on the one hand, and labor and capital on the other hand; labor and capital sharing on an equality in proportion to the value of their investments.

"Third, as to all industries engaged in production not based on grants of privileges or monopolies, the adoption of legislation either local or national requiring all corporations organized for the conduct of such industries to recognize the right of labor as the investors of present human creative effort to participate with capital, the investors of past creative effort, in the control and management of the industry, and to share in the profits of such industries on terms of equality with capital. •

"Fourth, individualistic industries—farms and productive enterprises owned and operated by the same individuals—shall, by the adoption of the three foregoing paragraphs, be freed from all encroachments of privilege under which they

are now suffering, and thereby restored to economic and industrial freedom; that the administration of all such industries shall be left entirely to the individuals owning and operating them, relying upon the restored freedom of the law of supply and demand to protect the interests of the public, the interests of labor and capital in such industries being joined in the same individuals.

"The interests of agricultural laborers and tenant farmers will be promoted inevitably by community acceptance of the principles of a fair division of rewards for service which are outlined for industries of large capitalization."

Describing the evils of the existing system and the reasons for proposing his plan, Mr. Plumb says in part:

### The Evils to Be Remedied

"The existing industrial system is crashing about our ears. The natural wealth of this country is far beyond computation. Its organized productive capacity exceeds all present demand. Large and increasing percentages of its workmen are now engaged in the production of non-essentials which they themselves cannot purchase. Profits are exacted from the essential industries, whose products are consumed by the workers, in order to support industries whose products they cannot enjoy.

"Labor is treated as a commodity to be purchased at the lowest price obtainable in the market, just as are all the products of labor, things transferable in the open market. Capital, which labor has produced in the past in excess of its living demands, is concentrated in the hands of a few who had no part in its production. This capital represents not only the increased productivity of human effort but also undue profits exacted from consumers in higher prices and from labor in lower real wages.

"Under the existing system the owners of capital have had placed in their hands a monopoly of the management of all industry, with power to fix wages paid to labor, prices paid by the consumer and profits received by the owners of capital, and have also the power to determine the nature, quantity and quality of goods produced without regard to any consideration of the right of the public to require that essential products shall first be produced and non-essentials from the surplus of productive power remaining after supplying the need for essentials.

"The wages so fixed by such management bear no relation to the value to society of the services of labor which creates the products upon which profits are exacted.

"The prices so fixed bear no relation to the need of society for such products and the profits so exacted bear no relation to the value of services actually rendered by the owners of capital.

"In every industry there are three interests essential to its existence; first, the need of society for the products of that industry; second, the rights of those who furnish the capital to supply tools, material and equipment from the use of which society's need may be met and, third, labor, that human impulse which creates out of the tools, materials and equipment furnished by capital the commodities or services that society requires.

"As each industry is dependent upon the existence and co-operation of these three distinct interests, so every industry is dependent upon all other industries for the production of the tools, equipment and materials necessary for that industry and as the source of the means by which the public may

purchase the commodities of that particular industry. All industries are dependent upon transportation as affording the avenue of exchange and distribution of raw materials, semi-fabricated materials and finished products.

"This complete interdependence of one industry upon all others is the result of the development of co-operative specialized production. The welfare of each industry is essential to the prosperity of all others. The well-being of those employed in each industry reacts beneficially upon the well-being of all those employed in other industries. Conversely, profits wrongfully exacted from those employed in one industry prejudicially affect all of those employed in other industries in direct proportion as the purchasing power of the first body of employees is reduced, and thereby their ability to consume the products of their own and other industries is diminished.

"Since these three interests, the need of society, the rights of those who own capital and the productive capacity of those engaged in industry, are equal in importance to the existence of the industry, it necessarily follows that they must have an equal authority in the direction of the industry; for if one interest exceeds the other two in authority, that one uses its excess power for its benefit at the expense of the other two; if two exceed one, they will exert their excess power to the point of crushing the weaker interest, and with its extinction the industry fails and can only be revived when the third interest can again be induced to participate in the restoration of the industry.

"The recent coal strike is a speaking illustration of this principle. Society demanded coal to prevent its suffering. Capital owned ample tools, equipment and materials with which to meet that demand. But labor refused to co-operate with the other two interests and ceased to function as the creative power. The reason for its cessation was that under the authority exercised by those owning tools, equipment and material labor believed it was deprived of its share in the industry for the benefit of capital. The public was deprived of its necessities also for the benefit of capital, no matter what price the public was willing to pay. The public then joined its authority with that of capital to compel labor to serve. That attempt was a failure. The industry died and became a corpse, to be revived only when labor again consented to resume its function after its demands had been met to such an extent as to procure its further co-operation.

"Under the existing system there is no point of common interest between society's need, the profit-seeking of capital, and the interests of labor. The three fundamental interests are held apart by wholly diverse attitudes towards the industry. The public seeks to buy as cheaply as it can without regard to profits or wages. Capital seeks to obtain the highest profit it can without regard to the need of society or the rights of labor; and the laborer, being treated as the merchandiser of a commodity, naturally seeks to sell as little of that commodity as he can for as much as he can get, without due regard for the interest of capital or the need of society.

"This complete diversity of interest and the total lack of a common interest is responsible for the existing condition of industrial warfare. It creates classes in society separated by irreconcilable distinctions and interests. Though individuals may pass from one class to another, their passing marks the end of their possible affiliation with the class they have left, and compels the adoption of the interests of the class which they enter.

#### Industry Analyzed

"We have four divisions of industry today, each distinct in the characteristics which differentiate these divisions from each other, and yet having actually common interests throughout.

"For the purpose of this analysis we divide industry into the following classes:

"First, those industries which are individualistic in ownership and organization. In such industries the individual owner combines in himself all of the interests on which industry is based; that is, he is capitalist, laborer and consumer. The agricultural industry, as now conducted, is the best example of this class. The small artisan, contractor and manufacturer also come within this classification.

"The second division includes all industries formerly individualistic, but which through organization have so developed that ownership is separated from labor and concerns itself only in direction and supervision of production, in which it engages the efforts of others who have no share in ownership.

"The third division embraces those industries which are based upon a grant from society in the shape of a franchise, grant of privilege or monopoly. These industries include all public service corporations, except interstate commercial transportation, and all industries engaged in exploiting natural resources. In all such public service industries the owner voluntarily devotes his property to the public use under the terms of the franchise granted to him and submits the conduct of the business to such public regulation as the terms of his grant require. He may, however, withdraw his property from the public service and surrender his franchise at his option unless precluded by the terms of the grant, but may completely withdraw his property from such service at the expiration of the term of his grant.

"The fourth division includes only railroads and commercial transportation facilities. This division is separated from the preceding public service industries by the following marked distinctions: The preceding public service industries are under local control, created by local authorities, and subject to local regulation. Railroads are national public highways, and, while created by state legislative enactments, conduct their interstate transactions only by consent of the federal government. The federal government alone has exclusive authority to control the agencies of interstate commerce, including transmission of intelligence, to construct and operate post and military roads, and to control shipping on navigable streams throughout the United States. In the case of the railroads, the property constituting a railroad is irrevocably dedicated to the public for highway purposes, to be used in the manner permitted by law, and may not be withdrawn from the public use except by legislative consent emanating from the same source that grants or controls the exercise of privilege.

"In all of such industries it is the need of society for the products of that industry or the service which it renders that calls the industry into being. In the first two classes, where society has made no grant, the free working of the law of supply and demand protects the public interest. The individual who invests in such industry knows that his profits depend upon supplying better goods, more goods and cheaper goods than his nearest competitor within range of his immediate market. If he fails to meet this demand his competitor controls the market and his investment ceases to be productive. He profits only as he meets the demand of society for more, better and cheaper products.

#### Public Interest Defined

"The public interest may be expressed as follows: It is the right of the public to obtain better, cheaper and more products or service *as the progress of the arts permits the making of more and better goods or service at a lower cost of production.* In the two last named classes of industry, that is, public service corporations, natural resources and railroads, this need of society has been crystalized into a grant. This grant in the hands of its possessors is valuable.



property. It is deemed to have earning power, a capacity for producing profits. That capacity for profit is measured exactly by the amount of charge which the public must pay for the service rendered in excess of what is required to pay the legitimate demands of labor and capital. To protect the public against extortion it has retained the right to regulate these charges. The Constitution denies the power of the public so to exercise its power of regulation as to deprive the owner of the property of his investment actually, honestly and prudently made, or of a fair return upon such investment. If society pays more than this amount which the owner retains as profit, society pays more than it is lawfully required to pay, and the owner receives more than he is lawfully entitled to receive.

"This introduces perpetual conflict between society in the exercise of this public regulation and the agent it has created for its service. Whatever society may pay in excess of the just demands of capital and labor is an exaction which deprives society of the power to consume a corresponding amount in value of other products and necessities and confers upon the owners of these agencies that power of consumption which they themselves cannot expend in meeting their own demand for necessities, but which finds its distribution only through supplying luxuries and procuring greater revenues for those who benefit by these exactions.

#### Interest of Owners of Capital

"The owner of capital never invests in an industry of the first two classes unless in his judgment he can make a profitable investment. The public never guarantees the mistakes of private judgment. There can be no compulsion of investment in these classes. In the last two classes, based on grants of society requiring service, capital is essential. It can only be procured with the consent of its owners. Therefore, such terms must be offered as will induce the making of the investment. To induce such investment the public must guarantee, first, its integrity; second, that rate of return which satisfies the investor in rendering the service required of him. These terms are always expressed in the contract. They are matters of contract pure and simple. That contract is defined by the terms of the charter which states the extent of the grant, the obligations assumed by the grantee and the benefits to be received by the grantor.

"In this discussion investment must be clearly distinguished from service. If the owner of capital invests his money and then also invests his services, he is entitled to receive reward for the service just the same as though he were not the owner of capital. He is entitled to receive return on his capital just as though he rendered no service. He cannot by combining in himself the two functions increase his right to personal return in either capacity. If he does receive more than just compensation for services and a fair rate of interest on his capital, he then enjoys a special or exclusive privilege distinct from the rest of the community, in violation of that fundamental provision of our government which was best expressed by President Adams in his draft of the Massachusetts constitution, adopted in 1780, as follows:

"Article 6. No man, corporation, or association of men have any other title to obtain advantages or particular or exclusive privileges distinct from those of the community than what arises from the measure of services rendered to the public."

"Also:

"Article 7. Government is instituted for the common good, for the protection, safety, prosperity and happiness of the people and not for the profit, honor or private interest of any one man, family or class of men."

"Labor is the expression of the human power to create. Applied to the use of tools, equipment and materials, it is

the agency that supports all production. Like capital, the labor of an individual is his own exclusive property. He may render or withhold his services as he sees fit. He may demand such terms as he will, and if those terms are not complied with he may refuse to serve. But the necessity to provide for hunger, cold, shelter and clothing compels the rendering of service. To withhold service in spite of such necessities means the surrender of life, the extinction of the individual. Sometimes the effort required to meet these necessities becomes so great that existence becomes unbearable, life a horror and extinction a thing to be desired.

#### Rights of Labor

"Every man has the right to live, provided he renders service. In return for that service he is entitled to receive the service of others in the shape of the commodities comprising life's necessities which others produce. *The measure of what he shall receive depends entirely upon the amount in value of service which he renders. He is entitled to receive an equivalent amount in value of the services of others.*

"The wage system disregards this human right. Under the wage system he receives only enough for his services as will entitle him to procure of the services of others the bare necessities of existence, this without regard to the value of the service which he renders to the community.

"The pressure of the existing system tends so to lower wages as to give to labor so bare and meager an existence as is not worth the effort of prolonging. The present system by raising the price of commodities deprives consumers of the means of purchasing more than the bare necessities of life and gives to the owners of capital all of the constantly increasing values reflected by the difference between actual cost of production and the price at which commodities are sold—diverting this increased value from the common use of the community to the special use of a highly privileged class.

#### The Remedy

"To correct this system there must be absolute equality between the three interests—the public, capital, labor. In order to permit equality there must be equal authority.

"To accomplish this end, I submit to the American people the true foundation for the reconstruction of our industrial system. This requires that the grant of society, existing either in a privilege, monopoly or grant, shall be deemed the investment which society makes in that industry benefited by the grant; that the capital required to support the industry shall also be deemed an investment. Labor, the creative power of individuals employed, shall be deemed an investment.

"Society shall receive profits on its investment in the shape of better, cheaper and more service.

"Capital shall receive its share in guaranteed protection of investment and that current rate of return which in the markets of the world procures the acceptance at par of the securities which represent invested capital.

"Labor shall receive as its return upon its investment of human effort that rate of wages which in the free markets of the world procures the service of that class of labor and, in addition to wages, shall receive its share of all of the savings which labor can effect in the processes of production.

"In those industries which should properly be owned by the community, and where the capital employed has an absolute guaranty of integrity and return, all of the savings reflected in the greater productive power of increased efficiency should be evenly divided between the public, who consumes the products or service of that industry, and labor, which creates such products or service. In such industries employing private capital to render public service, based on a

grant, the public, or consumers, should still enjoy one-half of the savings of such efficiencies. Capital and labor jointly should receive the benefit of the other half, to be distributed between capital and labor in the proportion of their respective investments; that is, capital should receive that proportion of such savings which the interest on capital bears to the wages paid to labor. The public's half in such savings, scientifically computed and certified, should be reflected in a reduction of price to the consumers of the service rendered.

"In industries of the second class, that is, those industries engaged in production but not based on the enjoyment of a public grant, privilege or monopoly, there are two forms of investment—that of capital and that of labor. In such industries both classes of investors should share in the direction and control of the industry equally and in the distribution of the profits in the proportion which their respective investments bear to each other.

*"If this system were universally applied to production, every producer would receive, as a producer, in increased earning power one-half of all efficiencies created in the process of production of the industry in which he or his capital is employed, and as a consumer he would receive in the increased purchasing power of his earnings one-half of all efficiencies created by all other producers in all other industries."*

"By this method of distributing the wealth created by industry, each individual would be assured of receiving in return for his service an equivalent amount in value of the services of all other producers whose commodities he consumes. By no other method of distribution can a producer be protected in his right to exchange his service to society for an exact equivalent in service rendered by all the other members of society.

"Such a system protects every individual in both of his social interests; that is, his interest as a producer and his interest as a consumer. It extinguishes all class distinctions. It brings into being the promise of the founders of our country that under our government there shall be equal opportunity for all, with special privilege for none. It protects to the fullest extent every interest which the owner of capital possesses under the Constitution. It also fulfills the prime purpose of government, in that it protects to every citizen the full enjoyment of the gains of his own industry. It requires no amendment of the fundamental law. It merely requires adoption."

#### Radical Issue Seen at Issue in Presidential Campaign

The coincidence of the Jackson Day dinner of the Democrats at Washington on January 8 with the issuance of various statements, letters or speeches relating to the railroad question aroused considerable discussion as to the part it is to play in the presidential campaign. Former Director General McAdoo did not attend the dinner, but in a letter referring to the incapacity of Republican leadership he said: "The railroad problem bungled and no promise of a real or permanent solution in the Cummins and Esch bills now in conference. These bills leave the fundamental untouched. The public interest is not protected, while increased rates, inefficient transportation and general disappointment will result." Mr. McAdoo did not touch in the letter upon his remedy for railroad difficulties, although his five-year plan is still recalled. Director General Hines' speech before the New York Bar Association, in which he combined a defense of his administration of the railroads with his ideas for their future regulation, was published in the morning papers alongside of Mr. Plumb's plan. The description of Mr. Plumb's so-called tripartite scheme of industrial management, the primary purpose of which is to oust capital as an important factor, was compared with Mr. Hines' declaration for giving both labor and the public a more direct par-

ticipation in railroad management, although the two ideas are, of course, widely different. The Plumb statement had previously been given out to the newspapers for release on January 15, but had been picked up from other sources by the Associated Press and published prematurely, according to Mr. Plumb's office, although the fact that this happened to bring it out on the day that Mr. Hines' speech was published and on the day that Mr. Bryan was declaring for "the right of the people to own and operate all necessary monopolies in the interest of the public" gave huge delight to the Plumb plan leaders. Mr. Bryan's scheme for federal ownership of trunk lines and state ownership of local lines is, of course, a very different thing from the Plumb plan, even if it were not qualified by the words "in the public interest," but neither party is particularly anxious to interpret its ideas too specifically, because both are keen for the advantage of whatever glamor either may attract. Mr. Bryan has tried to interject himself into the solution of the railroad question on several recent occasions, both in speeches and by appearing rather suddenly before the House committee during its consideration of the railroad bill during the summer. He then appeared very eager to butt into the limelight which had been focussed upon Mr. Plumb, but was somewhat nonplussed to find that the committee had progressed beyond mere general ideas for and against government ownership, and he declined to express an opinion either way as to details of the Plumb plan, although he did object to its proposal to give two-thirds of the directorate to the officers and employees and only one-third to the public. Senator Pomerene of Ohio, who also considers himself a presidential candidate, replied to Mr. Bryan at the dinner, opposing both the Plumb plan and government ownership. He mentioned the difficulty that would be experienced in floating an issue of government bonds with which to buy the railroads and also told of the wide distribution of railroad securities, of which, he said, while some are held in Wall street, some are held by washerwomen.

It is reported that Mr. Plumb proposes to hold a conference with Mr. Bryan shortly to discuss their proposed plans for the railroads.

#### Traffic Committees to Close up Work

**B**ECAUSE of the postponement of the return of the railroads from January 1, the date originally expected, to March 1, Directors Chambers and Thelen, of the divisions of traffic and public service, on January 7 issued revised instructions to the regional freight traffic committees as to the closing up of their work. The instructions issued on October 22 are continued in effect and all freight traffic committees are requested to continue to work as now organized until the end of federal control in order not only to dispose of subjects now before them, but to be in a position to handle promptly any matters which Directors Chambers and Thelen may find necessary to refer to them for consideration or for further information.

It is stated that the large number of applications and reports which have reached the two divisions from the committees in the last few weeks will require active efforts for the next few weeks. No applications for changes in freight rates are to be forwarded to the divisions on or after February 1 except such as may be in response to requests or instructions from one or both divisions and the committees are to begin at once the compilation of a report to be made promptly after the close of business January 31 showing all applications for freight rate authority or reports from committees forwarded to Washington on or before that date on which rate authority has not been issued or other definite action taken.



## Railroad Labor Organizes Co-Operative Commission

**A**PPARENTLY convinced that there is little hope for further wage increases from the Railroad Administration and knowing that their prospects in that direction will not be favorable after the return of the railroads to private management, the officers of the railroad labor organizations are showing indications of a gradual acceptance of the idea that increases in wages do not constitute a remedy for the increased cost of living and that it may be more profitable for them to attack the problem directly. The advisory board of the Brotherhood of Locomotive Engineers publicly expressed its appreciation of that idea last summer when it asked the President to use the powers of the government to reduce prices as an alternative to further wage increases, and this brotherhood has refrained from presenting any new wage demands of its own to the Railroad Administration, although most of the other railroad unions did so, and it has asked that it be given similar treatment if any increases are allowed to the others. Now that Mr. Hines has persisted for several months in his declaration that a new cycle of wage increases must not be started, the brotherhoods, the shop crafts and some of the others have announced a plan of joining with certain farmers' organizations in a scheme of co-operative buying, production and distribution in an effort to reduce the cost of living.

While no announcement has been made that the plan contemplates a withdrawal of any of the wage demands, there have been indications for some time, more particularly since the Senate passed the Cummins bill with an anti-strike clause, that they preferred not to press them too hard. B. M. Jewell, acting president of the Railway Employees' Department of the American Federation of Labor, who has been conferring with Director General Hines regarding the wage demands of the shop employees, issued a statement regarding the co-operative movement in which he said that "an increase in pay will not solve the problem" because higher wages accompanied by higher prices result in a "vicious circle."

The wage demands presented during the summer were accompanied by many threats of strikes unless they were met before the return of the roads. When the Railroad Administration showed powers of resistance to the demands the labor leaders began to take counsel of their fears that the railroad companies might try to reduce wages and began to agitate for an extension of federal control. Threats were then made of strikes if any anti-strike bill should be passed but after the Cummins bill had been reported to the Senate including the anti-strike provision, it was apparently regarded more seriously and during the recent efforts to defeat it there has been very little threatening, in public, at least. While the prevailing opinion in Washington seems to be that the anti-strike section will not be adopted, and while labor leaders say that two-thirds of the members of the House are against it, it is evident that the danger that it might be adopted has had a salutary effect. After the President had disregarded the demand of the labor leaders that he retain the railroads some rather sensational newspaper articles were published forecasting a railroad strike on the strength of the threats previously made, but while conferences have been held with the Railroad Administration there has been little of the old-time belligerent attitude. Possibly the campaign against the Cummins bill and for the retention of the railroads is engrossing all their efforts but the subject of wage increases has been allowed to drift somewhat into the background. Labor leaders in Washington profess to be firmly convinced that Congress may yet be persuaded to force the President to keep the railroads but they are not saying much about what will happen if they are disappointed.

The formation of the All-American Farmer-Labor Co-operative Commission, "to conduct a vigorous campaign for direct dealing between farm producers and city consumers, and as soon as feasible, between city producers and farm consumers, was announced at Washington on January 7. Further plans for the organization of co-operative stores and possibly a co-operative bank are to be considered at a conference at Chicago in February. W. S. Stone is general treasurer of the commission, L. E. Sheppard, vice-president, and other railroad labor officers are also connected with it, including A. E. Barker, president of the maintenance of way employees' organization, which recently announced the establishment of co-operative factories for the production of clothing and other necessities used by its members. The commission is said to be proceeding entirely independently of Mr. Gompers and the American Federation of Labor.

Some interesting labor politics, which the labor leaders are not inclined to discuss openly, may be perceived in the maneuverings which have been connected with the various proposals which they have put forward in recent months. After the Atlantic City convention of the American Federation of Labor it was announced that working arrangements had been made between that organization, which already included the six shop crafts and several other railroad unions, and the four transportation brotherhoods, and that they were about to take out charters as members of the federation. It was also stated that the federation had endorsed the Plumb plan, which had previously been endorsed by the brotherhoods, or at least by their officers, but it later appeared that this was not the case and that both President Gompers and his executive council declined to do so, although Mr. Gompers' name had been and still is used as honorary president of the Plumb Plan League.

While conferences between between the A. F. of L. officials and the executives of the brotherhoods were frequent, no further announcement was made of their affiliation with it and when Mr. Gompers was requested by the President to name 15 delegates to the Industrial Conference held in November only one railroad labor leader was included and the brotherhoods announced their intention of staying away. The difficulty was removed by the appointment of all four brotherhood executives as delegates to the conference but when the A. F. of L. delegates bolted the brotherhood leaders remained until the close of the session. Later the federation and the brotherhood leaders joined in an invitation to the farmers' organization to a joint conference in Washington in November and only one of the latter accepted. Then the brotherhoods joined with some other farmers' organizations in a conference at Chicago which endorsed the Plumb plan and they are now working together on the co-operative plan with which Mr. Gompers' organization seems to have little connection. While 14 of the railway labor organizations joined in several public statements addressed to the President, the director general or to Congress, regarding wages and legislation, the engineers and conductors withheld demands for increased wages while the others were presenting theirs.

After Mr. Gompers had turned down the Plumb plan and Congress also had indicated very little interest in it, the agitation for it in Washington was allowed to die down, although the propaganda throughout the country was continued, and the railroad labor lobby at Washington turned its attention to its demand that the railroads be retained under federal control for two years. Mr. Gompers joined in this—with some reluctance and after considerable pressure had been brought to bear, according to reports,—but he announced at the same time that he was opposed to government ownership, and merely wanted a further test of federal operation. In the opposition to the proposed anti-strike legislation the federation and the brotherhoods have been working in close

co-operation but it is said that there are several points on which they are not yet in harmony. The American Federation of Labor, after having had its fingers burnt by its connection with the steel and coal strikes, has recently been trying to assume a less radical position than that into which it had been drawn, but just as it was beginning to enjoy its reputation for a conservatism, Mr. Plumb came out with his ultra-radical scheme for extending the principles of his plan to all industries except those classed as individualistic. This latest phase of his activity seems as yet to have no definite backing except that of its author but if it should receive endorsement by any of the labor organizations the result would be to widen some of the numerous breaches in their ranks.

## Shippers Oppose Provisions of Cummins Railroad Bill

**R**EPRESENTATIVES of 147 shippers' organizations having a combined membership of more than one million shippers handling live stock, coal, grain, lumber, oil, furniture, brick, dairy products and various other commodities, and aggregating more than 75 per cent of the tonnage of the country, met in Chicago on December 30, to consider national legislation which will precede the return of the railroads to private ownership. As a result of the conference a memorial was adopted, addressed to the Joint Conference Committee of the United States Congress considering the Cummins bill providing for the termination of federal control.

The resolutions adopted as a result of the conference and outlining the views of the shippers are as follows:

The Cummins bill proposes to create a new commission to be known as the Transportation Board. It is contemplated by the said measure that this new tribunal shall take over a number of the functions now exercised by the Interstate Commerce Commission in relation to the control over public service; and that it shall further invade the province of the Interstate Commerce Commission in the establishment of reasonable rates by making public recommendations in rate advance cases without the necessity of conducting any public hearing in regard to the same.

The creation of an additional federal board of this character is wholly unnecessary, and will serve to create confusion and conflict in the regulation of our common carriers.

The Interstate Commerce Commission commands the confidence of the American people, and it merits our continued support. The powers of the Commission should remain unabated and should be added to so as to enable it to effectually deal with national transportation problems.

Our system of railroad regulation as it existed prior to the recent war was the product of a generation of development, by the trial of cases before various tribunals and by the enactment of legislation from year to year resulting in the gradual evolution of a system which protected the just rights of both the shippers and the carriers. We want these pre-war conditions restored at the earliest possible moment without any more experiments or revolutionary changes. Business demands an immediate restoration to normal pre-war peace conditions.

We are equally opposed to any attempt to abridge the jurisdiction and functions of state commissions. We, as representatives of the shippers of the country are united in urging Congress to immediately restore the powers of the commissions and the courts, both state and federal, as they existed prior to the war.

We oppose any permanent form of a guaranty of, or limitation upon, the earnings of railway companies, as provided in the Cummins bill; but we do not object to a continuation of the standard return provided in the railroad control law approved March 21, 1918, for such a reasonable time as may be found necessary during the present transition period.

We oppose the appropriation by the government of the surplus earnings of any railway company.

We are opposed to the compulsory consolidation of railroads as provided in the Cummins bill. Guaranteed returns to any private industry removes the powerful incentive for personal initiative. It is economically unsound and socialistic in character; and such provisions should be eliminated from the measure.

We oppose the scheme of rate making groups, the standardization of earnings therein and the federal incorporation of railroads as provided for in the Cummins bill.

We are opposed to the pooling of the earnings of our common carriers.

We are in favor of the passage of legislation which will provide for the return of the railroads to their owners at the earliest possible moment and permit operation by them.

The public, being wholly dependent upon the daily, uninterrupted, continuous operation of our common carriers, we are in favor of the enactment of legislation that will effectually prevent a catastrophe that would call a general railroad strike, and which will at the same time fully recognize the just rights of the laborer and all parties in interest.

We favor legislation which will direct the Interstate Commerce Commission to investigate the rail and water transportation facilities of the United States with the view of making such recommendations to Congress as may be deemed advisable for the further development or unification of the same.

The meeting was called by Clifford Thorne, former member of the Iowa state railroad commission and the session was presided over by Judge S. H. Cowan of Fort Worth, Tex., counsel of the National Livestock Shippers' League. The call to the conference was signed by the National Livestock Shippers' League, the National Lumber Manufacturers' Association, the American Federation of Furniture Manufacturers, the American National Livestock Association, the National Paving Brick Manufacturers' Association, the American Face Brick Association, the Hollow Building Tile Association, the American Fruit and Vegetable Shippers' Association, the Live Poultry and Dairy Shippers' Traffic Association, the Corn Belt Meat Producers' Association, the National Federation of Co-operative Livestock Shippers, the National Association of Corrugated Fibre Box Manufacturers, the National Council of Co-operative Grain Elevators' Association, the National Kraut Dealers' Association, the Independent Salt Manufacturers, the Illinois Coal Traffic Bureau and the Peoria (Ill.), Board of Trade. In addition, practically every organization of shippers throughout the country was invited to send representatives to the conference.

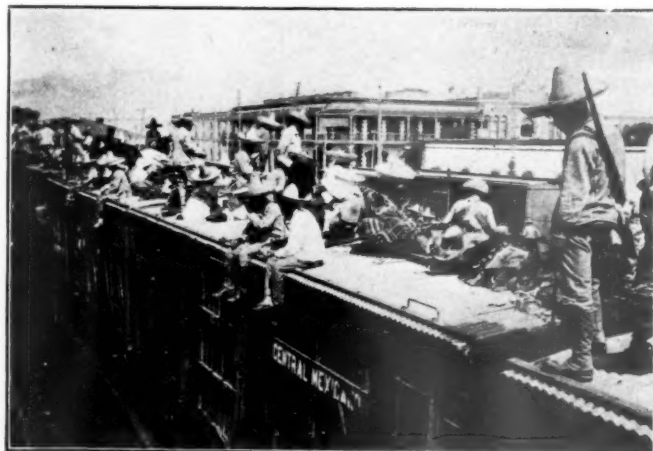


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Mexican Troops and Their Mode of Transportation



# Increased Efficiency in Maintenance of Way Work\*

## What Must Be Done to Insure Greater Economy in the Vast Expenditures Made for This Purpose?

By A. M. Burt

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THE EXPENDITURE for maintenance of way and structures of the Class 1 railroads of the United States for the year 1919 will be in the neighborhood of \$750,000,000, representing about one-sixth of the total operating expenses of these roads. Reduced to a daily basis, this means that it requires more than two million dollars a day to keep the railroads in condition for use. While this is much less than the amount spent for conducting transportation and considerably less than the cost of maintenance of equipment, it is nevertheless one of the major items that go to make up the total cost of operation. The increased cost for maintenance of way purposes has been very large, so that now fully one million dollars a day more is being spent for this purpose than was spent three years ago.

The magnitude of these expenditures and the very large increases should make us all stop and take thought. The question that immediately presents itself in connection with them is whether progress is being made toward increased efficiency—if so, whether the maintenance of way department is keeping in step with the other departments in this essential matter, and whether some changes in methods can be made to secure better results. It is, therefore, of value to consider the differences that now exist in methods designed to increase efficiency as between the maintenance of way and the other departments of a railroad. In comparing these methods we find the following conditions standing out very prominently:

In connection with transportation operations many measures of work done have been devised and are in daily use, and the supervisory officer is constantly in touch with the situation through various reports. In maintenance of equipment work some measures of work done have been devised, although their application is much less general than in the transportation department.

In maintenance of way work any measures of work done are, generally speaking, conspicuous by their absence. There is, in this work, no way of striking a balance between cost and output or of showing in any definite way whether the work is being done with greater or less efficiency than heretofore. On many roads a budget system is in use, but no matter how well such a system is carried out it does not supply the measure of work done. The supervisor knows that he has been allowed a certain amount and believes that he has spent this amount judiciously, but he has no way of knowing definitely whether he has accomplished more or less than the supervisor on an adjoining district or of knowing whether he is making an improvement or the reverse as compared with his past record.

It seems clear that some measure of work accomplished is very desirable. There is nothing that stimulates thought and initiative to such an extent as a little competition with one's neighbor. It puts an element of sport into the job and not only helps the work, but is a most developing condition for the individual. It is realized that the character of maintenance work makes it especially difficult to establish measures of work accomplished such as are in common use in connection with transportation matters, but there is apparently a tendency to magnify the difficulties of the subject and to assume the attitude, "What's the use? It can't be

done." It surely must and will be done in a much larger measure than it is being done at present, and, if it is to be well done, the practical maintenance men must take an active interest in the subject and do their bit in solving the problem. When we have done anything in one way for years we all are apt to consider that way as being the only right one and to consider the subject as a closed book. This, in a measure, is the present attitude of mind, but we have got to shake ourselves loose from such an attitude if progress is to be made.

If the practical maintenance men do not take an active part in this matter there is danger of the work being put on a statistical basis to such an extent that no good results will be accomplished. There has been some of this in the past in other departments, where in some instances statistics have been undertaken so involved in detail that the result was nothing more than a work of the imagination. The maintenance men must make a special effort to insure against such a mistake as this in connection with their work. On the other hand, some progress is possible in simple ways, and something of this kind must be undertaken.

To illustrate what might be done but is not: Several years ago a certain railroad used its maintenance forces for packing ice. The work was completed in December or January, and the following spring, about the time the mosquitoes began to get bad, a statement of the cost of the work was returned to the division from some source generally unknown. This report was turned over to the roadmaster, who was then very much engrossed in his spring work and who usually classified it as "Interesting, if true," checked it with a lead pencil and filed it away in its proper box where it could be used by his clerk in the event of his being called upon to make any explanation. No daily records were kept while the work was in progress.

Some time later the work of packing the ice was turned over to a contractor, and immediately the job was organized on a business basis. The foremen were required to make a report each night showing the amount of ice packed, the payroll in total and per ton and the delays in time and labor cost. In this way each foreman was kept in close touch with his work without being unreasonably burdened with details. If he was delayed for switching, he had something tangible to show the yardmaster; if he had an unreasonable amount of trouble with his hoisting engine, the fact immediately showed up and received attention; or, if his force was out of balance, that fact was immediately called to his attention by the increase in his unit cost. It would have been entirely feasible to have had a similar plan when the railroad was doing the work with its own forces, but no such plan was used. Many similar instances could be cited, going to show that advantage has not been taken of the opportunities that are readily available.

Every maintenance man should be giving this problem the most thoughtful and constant attention, and without question the subject deserves more attention from managers than it has had in the past.

The following is offered by way of suggestion:

1. Better facilities should be provided for the exchange of ideas. Local roadmasters' and supervisors' associations should be encouraged. Such associations are most helpful if

\*From the U. S. Railroad Administration Bulletin.

discussions are kept along general lines and away from matters having only a narrow and local interest. The time of the men away from their routine work is well spent. There is less experience with foremen's associations, but apparently considerable benefit might be derived from them.

2. Attendance at national maintenance of way meetings should be actively encouraged and liberal allowances should be made for the expenses of men attending such meetings. The men always bring back ideas and inspirations that result in more efficient work.

3. The question of getting a more general dissemination of ideas and information through publications should be considered. There should be a more general use of the maintenance of way periodicals.

4. The problem should be worked out from the inside and by the talent already on the individual railroads. There is plenty of such talent, and, by encouraging the local men to work out the problems, morale will be improved. They can do the work much better than it can possibly be done by any so-called efficiency expert from the outside. In doing this each man should be given proper credit for his ideas and his part in the work.

The New Year is at hand, and the opportunity of the maintenance of way man is here. We look forward, confidently, to his making the most of that opportunity.

## New Mine Ratios and Car Distribution Rules

THE FOLLOWING new rules have been promulgated by the Car Service Section in Circular CS-31 (Revised), to govern uniformly the rating of coal mines (other than anthracite) and car distribution to such mines. They will supersede the rules contained in Car Service Section Circular CS-31, and are to be made effective on all railroads loading coal (other than anthracite) in season to permit car distribution to be made in accordance therewith, beginning January 10, 1920.

### RULES FOR RATING COAL MINES LOADING COAL

The following rules shall govern the rating of coal mines (other than anthracite) as the basis for the distribution of empty cars to such mines:

(a) The daily capacity of each mine (other than mines covered by paragraphs *b* and *c*) shall be determined by taking the total coal tonnage shipped by the mine during the preceding month, dividing it by the number of hours worked in producing it (see paragraph *e*), and multiplying the quotient by the number of hours in the recognized workday (not more than 10 hours) of the individual mine. The result shall be termed the "daily rating" of such mine and shall be the basis on which cars shall be distributed to it.

(b) The daily capacity of a mine which is served jointly by or for two or more carriers (steam, electric, or water) shall be determined by taking the total tonnage shipped by the mine via all such carriers during the preceding month, dividing it by the number of hours worked in producing it (see paragraph *e*), and multiplying the quotient by the number of hours in the recognized workday (not more than 10 hours) of the individual mine. The result shall be termed the "gross daily rating" of such mine and shall be the basis on which cars shall be distributed to it; provided, that if track or other limiting conditions further restrict its ability to ship via (note *a*)..... railroad, such conditions shall be the limiting factor for the (note *a*)..... railroad's daily rating of such mine.

(c) The daily capacity of a mine delivering part of its

output to a coking plant, to locomotives at the tippie, or to local trade shall be determined by taking the total coal tonnage shipped in railroad cars during the preceding month, dividing it by the number of hours worked (see paragraph *e*), and multiplying the quotient by the number of hours in the recognized workday (not more than 10 hours) of the individual mine. The result shall be termed the "daily rating" of such mine and shall be the basis on which cars shall be distributed to it.

(d) When the fires are withdrawn from part (or all) of the ovens at an operation coking part of its output, for the purpose of shipping coal production formerly used in charging ovens, the daily rating of the mine shall be increased to include the average tonnage per day so diverted in the previous month until the beginning of the next rating period, at which time the daily rating of the mine shall be determined in accordance with paragraph *a* or *c*, due allowance being made for such average tonnage so diverted in computing the new daily rating. A corresponding decrease of the mine's rating will be made when the ovens are again placed in blast.

When a mine that has been coking its entire output desires to ship coal and the fires are withdrawn from part (or all) of its ovens, it shall be given a daily rating for coal shipments corresponding to the average tonnage of coal formerly coked until the beginning of the next rating period, at which time the daily rating of the mines shall be determined in accordance with paragraph *a* or *c*.

(e) In determining the number of hours worked in each day at a mine, time will be counted from the established time for beginning work (or the actual time if earlier or later than the established time) on the tippie until the dumping of coal finally ceases for the day, making deductions for the noon intermission when it is taken and for the time lost by reason of being blocked with loads, waiting for additional empty cars, or other railroad disability; provided, that if a greater number of hours is worked in the mine than on the tippie, the mine hours must be reported also, and the number of hours worked in the mine must then be used as the number of hours worked in producing the coal. (See paragraphs *a*, *b* and *c*.) Time may be deducted for railroad disability only when such railroad disability actually reduces the quantity of coal dumped that day. Time may be deducted when tippie is used for dumping coal into locomotives only when the tippie can not be simultaneously operated for loading cars.

(f) Daily ratings determined in accordance herewith will be revised monthly and made effective on the 10th of the month following the month's performance on which the rating is determined.

(g) If a mine be idle for a period of one full calendar month or more, the last rating determined will be the rating when work is resumed, provided the mine conditions be substantially the same as when the mine closed.

(h) Rating for development purposes based on current performance will be assigned to a new operation in previously undeveloped coal. A new mine will be furnished with a supply of cars sufficient to enable it to work freely in the course of development for a period not exceeding 6 months after shipments are begun; provided, that if theretofore its ability to load 150 tons per shift (not, however, to exceed 2 shifts per day) is established, it shall then be rated. A new operation of any other character shall be entitled to a development rating for a period of one month after shipments are begun.

(i) Each mine shall report on a prescribed form to the ..... (note *b*) ..... promptly at the close of each day:

1. The number of hours in the recognized work day;



2. The established time for beginning the day's work;
3. Actual time work was begun this day on the tippie;
4. If the noon hour intermission is taken, how long;
5. Time lost during the day account:

Waiting for railroad cars or other railroad disability. . . . . hours;  
 Strikes or mine labor shortage. . . . . hours;  
 Mine disability . . . . . hours;  
 No market . . . . . hours;  
 All other causes . . . . . hours;

6. Time work on tippie ceased for today;
7. Number of hours worked to-day on the tippie, . . . . .  
 . . . . .; and in the mine, . . . . . (See paragraph e);
8. Number of net tons of coal loaded for shipment via  
 . . . . . (note a) . . . . . railroad;
9. Total number of net tons of coal produced and shipped  
 via each other outlet.

Joint mines shall furnish this daily report to each carrier serving them.

If after notice from the railroad an operator persistently fails to furnish this daily report, he will be penalized by curtailment of his car supply to the amount of 25 per cent of distribution for one week.

(j) At the close of each month the mine manager or superintendent in charge of actual operation shall report under oath on a prescribed form to the . . . . . (note b) . . . . . having jurisdiction, separately for each mine for each month, as follows:

1. Number of hours in the recognized workday;
2. Total number of net tons of coal produced;
3. Total number of net tons of coal shipped via the . . . . .  
 . . . . . (note a) . . . . . railroad;
4. Total number of net tons of coal shipped via each other outlet;
5. Total number of hours worked during the month. (See paragraph e.)

This report must be forwarded not later than the 3d of the month following that for which the statement is furnished; provided, that where the location of the mine makes it inconvenient to furnish a report under oath by that date, a report not under oath may be forwarded, and the sworn report forwarded not later than one week after. Joint mines shall furnish this monthly report to each carrier serving them.

(k) If an operator declines or persistently fails to make reports or to make accurate reports to the carrier as required herein, it will be assumed that the mine worked full hours in producing and loading into railroad cars the tonnage shipped, and the daily rating will be computed accordingly.

(l) A statement showing the mine ratings which will govern the car distribution for the succeeding month will be furnished as soon as such ratings are ascertained to such coal mines on this railroad as make application for the same. Such statement will show the mine rating of each mine and the total mine ratings of each coal loading district and the aggregate ratings for all mines and all districts on this railroad, and the percentage of each such figure to the total.

NOTE a.—Designate the name of issuing railroad.

NOTE b.—Designate title of proper officer of issuing railroad.

#### RULES GOVERNING THE DISTRIBUTION OF CARS TO COAL MINE TIPPLES (OTHER THAN ANTHRACITE).

Whenever the available car supply in any region (or district) is such that all orders for cars can be filled, cars shall be placed at each mine in accordance with its daily order, except that whenever a mine holds unbilled coal loads, it shall be entitled only to empty cars equal in number to the difference between the rating last established for the mine

and the number of unbilled coal loads so held. Whenever the available car supply is such that all orders for cars can not be filled, each mine shall be given its prorata share of cars in accordance with the following rules:

1. The daily rating, or the daily order for cars if less than the rating, shall be the basis for car distribution.

2. Grouping of mines, or pooling of cars as between mines, will not be permitted.

3. On application of mine operators and in the discretion of the railroad, cars may be placed on such days only and at such mines only as may elect to work, and overs and shortages in car supply resulting from this distribution shall be adjusted on succeeding days.

4. Each mine operator shall report to the car distributor at . . . . . (note 1) . . . . . p. m. daily:

- (a) Number of unconsigned loads on hand at 7 a. m.
- (b) Number of empty and partly loaded cars on hand at 7 a. m.
- (c) Additional number of empty cars received during the day.
- (d) Aggregate number of empty cars received during the day.
- (e) Number of cars loaded during the day.
- (f) Number of empty cars standing over at close of day.
- (g) Number of empty cars standing over at close of day which were received prior to 7 a. m., . . . . . cars; and prior to 10 a. m., . . . . . cars.
- (h) Number of partly loaded cars under tippie at close of day.
- (i) Number of unconsigned loads on hand at close of day.
- (j) Additional number of empty cars required for loading following day.
- (k) Note 2.

Copies of orders for cars for a mine that is joint with any other carrier (steam, electric, or water) shall be filed with a designated representative of each such carrier. Such combined requisitions must not exceed the gross daily rating of the mine.

5. The recognized standard car for coal car distribution is 50 tons. Others are compared thereto by tenths of a car; i.e., 80,000 pounds capacity equals eight-tenths (.8) of a car; 140,000 pounds capacity one and four-tenths (1.4) cars, etc., and cars must be charged and car distribution records maintained accordingly.

6. (a) All cars placed at a mine during each period of 24 hours ending at 10 o'clock a. m. (or when Sundays or holidays intervene, the longer period ending at 10 o'clock a. m. of the day immediately succeeding the Sunday or holiday) shall be charged against the mine on the day when such period ends; provided, that if the cars placed at 7 o'clock a. m. (not including partly loaded cars) do not equal or exceed in number 25 per cent of the daily rating (or order if less than the rating) then no cars will be charged against the mine that day except such as are loaded on that day.

(b) Cars placed between 10 o'clock a. m. and the time the mine ceases work for the day, if loaded or partly loaded on the day placed, will be charged against the mine on that day.

(c) All cars of other than railroad ownership (commonly called "private cars") placed for owners loading will be considered as ordered.

7. The pro rata share of cars to which each mine is entitled, except as provided in rule 9, shall be based on its rating (or order when less than its rating). When a mine has empty or partly loaded cars which were placed prior to 7 a. m., or unconsigned loads standing over at the close of the day's business, such cars shall be charged against it each service day thereafter while they are detained, except as otherwise provided in rule 6.

If on any day a mine be furnished with cars totaling less

than 100 per cent of its rating (or order if less than its rating) and for any cause whatever other than railroad responsibility fails to load the entire number, the mine shall be considered as having been furnished 100 per cent of its requirements, and its order shall be arbitrarily reduced to the number of cars furnished.

8. Private cars and such cars as are assigned to mines by the Car Service Section, United States Railroad Administration, will be designated as "assigned" cars. All other cars will be designated as "unassigned" cars.

9. If the number of assigned cars placed at a mine during any period, as provided in rule 6, equals or exceeds the mine's pro rata share of the available car supply, it shall not be entitled to any unassigned cars. The assigned cars, together with the mine's requirements, will be eliminated, and the remainder of the available car supply pro rated to the other mines, based on a revised percentage by reason of such elimination.

10. If the number of assigned cars placed at a mine during any period, as provided in rule 6, is less than its pro rata share, based on a revised percentage, it shall be entitled to receive unassigned cars in addition thereto to make up its pro rata share.

11. If a mine receives more or less cars than it is entitled to during any period, as provided in rule 6 (and after eliminating assigned cars as provided in rule 9), it will be charged with a surplus or credited with a shortage accordingly, and the discrepancy adjusted as promptly as practicable.

12. A statement showing the car distribution for the preceding month will be furnished as soon as such distribution is ascertained, to such coal mines on this railroad as make application for the same. Such statement will show the car distribution of each mine, the total car distribution of each coal loading district, the aggregate distribution for all mines and all districts on this railroad, and the percentage of each such figure to the total.

NOTE 1. *Hour may be named by the issuing railroad.*

NOTE 2. *Issuing railroad may ask additional necessary information pertaining to car supply.*

## Rules for Autogenous Welding

THE FOLLOWING RULES adopted by the Committee on Standards for Locomotives and Cars, U. S. Railway Administration, for the purpose of preventing the abuse of autogenous welding for purposes for which it is not well adapted, have been sent to the regional directors by Frank McManamy, assistant director of the Division of Operation, with instructions to direct all roads to observe the rules in the construction or repair of locomotive boilers, so that any failures which may have been caused or contributed to by unrestricted or improper use of autogenous welding may be prevented:

1. Autogenous welding will not be permitted on any part of a locomotive boiler that is wholly in tension under working conditions; this to include arch or water bar tubes.

2. Staybolt or crown stayheads must not be built up or welded to the sheet.

3. Holes larger than 1½ in. in diameter when entirely closed by autogenous welding must have the welding properly stayed.

4. In new construction welded seams in crown sheets will not be used where full size sheets are obtainable. This is not intended to prevent welding the crown sheet to other firebox sheets. Side sheet seams shall be not less than 12 in. below the highest point of the crown.

5. Only operators known to be competent will be assigned to firebox welding.

6. Where autogenous welding is done the parts to be welded must be thoroughly cleaned and kept clean during the progress of the work.

7. When repairing fireboxes a number of small adjacent patches will not be applied, but the defective part of the sheet will be cut out and repaired with one patch.

8. The autogenous welding of defective main air reservoirs is not permitted.

9. Welding rods must conform to the specifications issued by the Inspection and Test Section of the United States Railroad Administration for the various kinds of work for which they are prescribed, which specifications will be issued later.

## Atlanta, Birmingham & Atlantic Will Not Be Scrapped

PRESS REPORTS stating that there is a definite movement on foot among security holders of the Atlanta, Birmingham & Atlantic to liquidate the entire property, abandon the road and scrap it for what its physical properties will bring in the open market have brought forth a vigorous denial from W. G. Brantley, president and general counsel of the road. In denying that such a movement had been started, Mr. Brantley said in part:

"I have understood since the newspaper publication that some restlessness existed among certain of our income bondholders over the failure of the corporation to pay any of their interest coupons during the period of federal control. The facts about this interest are that the corporation earned and paid these interest coupons from the date of the issue of the bonds until the beginning of federal control. The corporation did not succeed in having a contract for its compensation executed by the director general until December 5, 1919. The contract as executed provides an amount barely sufficient to pay the corporate expenses and interest on the bonds of the corporation, including the income bonds. Interest on the underlying bonds has been regularly paid during federal control, and the money has now been received with which to pay the past due coupons on the income bonds, and arrangements are now being perfected to pay these coupons.

"The Atlanta, Birmingham & Atlantic is well located. It serves important sections of the country which without it would have no railroad service. It handles a large volume of business. Its record shows economy and efficiency of operation and that if granted reasonable rates it has a substantial earning power. Even prior to federal control, however, the railroad's income suffered because of a very low ton-mile rate, due largely to the inequality of rate divisions with connecting lines. Prior to the period of federal control the owners of the property planned to remove the inequalities to a great degree by extending the railroad from Waycross, Ga., to Jacksonville, Fla. Financial arrangements had been made and substantial steps taken to build this extension when the coming on of the world war stopped them.

"Obviously the owners of the property can make no definite plans at this time for the building of this extension until the pending legislation in Congress has been disposed of and the nature of the legislation enacted is known. The owners of the property would like to complete the extension and to further develop the property so as to accomplish the real purpose of its original building."

The Illinois State Tax Commission has announced that the total valuation of the steam railroads of Illinois for the year 1919 is \$574,742,228. The valuation of the electric lines is placed at \$40,873,538. Under a new law providing for the assessment of one-half of the valuation, the steam lines will pay taxes on approximately \$287,371,114.



## Weekly Traffic Report

**A**CCORDING TO A REPORT on traffic conditions for the week ended January 5, 1920, made to Director General Hines, the revenue freight loadings and receipts from connections for the various regions for this period as compared to the same period last year were as follows:

**Eastern region**—Revenue freight loaded, 166,999 cars, an increase of 26,764 over last year; received from connections, 231,709, an increase of 27,994. **Allegheny region**—Revenue freight loaded, 148,377 cars, an increase of 15,117; receipts from connections, 153,851, an increase of 10,646. **Pocahontas region**—Revenue freight loaded, 29,368 cars, an increase of 7,037; receipts from connections, 13,292 cars, an increase of 123 cars. **Southern region**—Revenue freight loaded, 94,549 cars, an increase of 22,284; receipts from connections, 71,933 cars, an increase of 16,213 over last year.

**Northwestern region**—Revenue freight loaded, 94,622 cars, an increase of 14,864; receipts from connections, 76,026 cars, an increase of 18,403. **Central Western region**—Revenue freight loaded, 103,315 cars, an increase of 24,939; receipts from connections, 66,011 cars, an increase of 20,216. **Southwestern region**—Revenue freight loaded, 50,349 cars, an increase of 14,505; receipts from connections, 49,175, an increase of 14,116.

For all the regions local loadings increased 125,510 cars, or 18½ per cent, while receipts from connections increased 107,711 cars, or 16½ per cent.

A summary of the report follows:

**Eastern Region.**—There has been considerable increase in freight traffic reported in practically all directions. Conditions at Detroit have improved, and while there has been some congestion recently at Toledo this is also showing improvement. Movement into and out of Chicago has increased and eastern roads are in fair shape. Chicago elevators report stock on hand December 27 as 23,267,000 bushels of grain, compared with a stock of 23,502,000 reported on December 28 last year.

**Allegheny Region.**—Loading of coal has reached normal stage. Full car supply was maintained for anthracite coal loading, but as to bituminous fields the present car supply is practically on same basis as was in effect prior to the coal strike. Coal dumped at tidewater increased 43,174 tons over the previous week. There is an increased shortage of box cars, grain cars, open and gondola cars for miscellaneous loading, but improvement in flat car, stock car and refrigerator car situation. Reports from the iron and steel territory indicate 110 pig iron furnaces in blast, 81 out, a gain of 5 stacks in blast as compared with the previous week. Delivery of grain to vessels at seaboard showed an increase of 504,000 bushels over the previous week. Elevators 27 per cent full. Both through and local passenger traffic was very heavy during the Christmas holidays, and there was some shortage of Pullman sleeping cars as well as steel coaches.

**Pocahontas Region.**—General business conditions appear to be good, and reports indicate a satisfactory holiday trade. Coal loading showed some improvement over the previous week, but is still below normal. Miscellaneous car supply was sufficient and coal car supply about equal to requirements in view of the light loading.

**Southern Region.**—General business conditions show a very satisfactory improvement as compared with the corresponding week of last year, evidenced by an increase of about 24 per cent in the local loading. The box car situation is slowly improving, but shortage of flat cars continues acute. Good supply of refrigerator cars on hand to protect perishable movement from Florida. Movement of fertilizer showed a material increase over previous week and heavy movement expected to continue some little time. Heavy passenger travel

throughout the Southern region necessitated the operation of 322 extra sleepers and 587 extra coaches.

**Northwestern Region.**—Future outlook is encouraging, both manufacturers and dealers being optimistic as to future conditions, but the car shortage has a depressing effect. Weather has moderated somewhat, but the general movement of traffic was adversely affected by car shortage, particularly for the movement of grain and forest products. All equipment available for grain loading is quickly absorbed. Coal mines generally have resumed operations, but the output has not yet reached normal. Passenger business shows a decided improvement.

**Central Western Region.**—Coal production during the week was very heavy, the loading being 60 per cent greater than the same period of last year. Mines were furnished with 100 per cent equipment during the past week. Embargo on eastbound traffic at inter-mountain gateways was modified on January 2 to permit acceptance of traffic by all gateways except El Paso. It is estimated that the navel orange crop in San Joaquin Valley, Cal., amounted to 17,516,000 boxes and movement will be completed within the next two weeks. Estimated production of lemons for California this year is 5,310,000 boxes. This will approximate 50,000 cars of citrus fruit. Passenger travel has been much heavier than for the same period last year, some lines reporting as much as 40 per cent increase.

**Southwestern Region.**—Business conditions were generally satisfactory, and figures of local loading show substantial increase as compared to same week of last year. Notwithstanding high prices, there is good demand for building materials, and prospects for building in the next few months are encouraging. All lines report heavy holiday travel, estimated at 10 per cent increase over last year, except in Texas, where it is estimated the increase ranged from 20 to 50 per cent. Generally speaking, sleeping-car equipment was adequate, but there was considerable congestion in coaches.

## Illinois Central Granted Extension on Terminal Ordinance

**A**N EXTENSION until February 21 of the time limit for the acceptance by the Illinois Central Railroad Company of the Illinois Central Terminal Ordinance of the Chicago city council, providing for the Chicago lake front terminal project, has been granted by the council. The ordinance was passed in 1919 and the railroad was given six months to consider the plan, the time limit expiring January 21, 1920. The railroad company asked that the ordinance be amended to provide for the financing of the improvements for which it will pay. The city and the road have been unable to agree upon that amendment. Recommendations for the granting of the permit to the Chicago South Park Board for the proposed lake front improvement, which includes the terminals, had been prepared by the War Department Engineers at Washington, D. C. Before such a permit is granted, however, various modifications and restrictions must be accepted by the Chicago interests. The report has been forwarded to Secretary of War Baker, but before acting upon it Secretary Baker will give a hearing to representatives of the South Park Board and the Chicago city council, the Illinois Central and other interested parties.

The railroad company asked for the amendment because of prospective national railroad legislation intended to control the issuance of securities. The form of an amendment has been under consideration by the attorneys for Chicago, the Chicago South Park Commissioners and the railroad company without an agreement having been reached as yet. The railroad wishes to stipulate in the ordinance that the

railroad improvements shall be financed by long-term notes or bonds.

The City Council deemed it inadvisable to assent to this, believing that the Interstate Commerce Commission, or some other agency which may be created to supervise common carriers, may desire that some of the improvements be paid for out of current receipts or by short-term notes.

## Railroads in Allegheny Region Unscrambled

**D**IRECTOR GENERAL HINES has announced that in preparation for the return of the railroads to their private owners on March 1 in accordance with the proclamation of the President, the following changes in the Allegheny region have been ordered, effective January 15:

The Western Maryland is released from the jurisdiction of Federal Manager C. W. Galloway of the Baltimore & Ohio Eastern Lines and M. C. Byers is appointed federal manager of the Western Maryland.

Mr. Galloway's jurisdiction is extended as federal manager over the entire Baltimore & Ohio system, thus putting under his jurisdiction the lines now under the jurisdiction of R. N. Begien as federal manager of the Baltimore & Ohio Lines West; also the B. & O. affiliated lines and properties which are now under the jurisdiction of C. H. Ewing, federal manager of the Reading.

The B. & O. Lines in the Shenandoah Valley are transferred to the jurisdiction of Federal Manager Galloway from that of Federal Manager E. H. Coapman of the Southern Railroad.

The jurisdiction of Federal Manager C. H. Ewing of the Philadelphia & Reading is extended to include the Gettysburg & Harrisburg Railroad and the Philadelphia & Reading between Shippensburg and Harrisburg, releasing those lines from the jurisdiction of Federal Manager Galloway of the B. & O.

The jurisdiction of Federal Manager Elisha Lee of the Pennsylvania Lines East is extended to include the Cumberland Valley Railroad, releasing that railroad from the jurisdiction of Federal Manager Galloway of the B. & O.

The arrangements thus made will be carried out so as to maintain the co-ordination and economical operation of the properties as a whole during the remainder of federal control.

## Women in Railroad Service

**A**N ANALYSIS OF THE FIGURES compiled by the Women's Service Section of the Railroad Administration shows the continued employment of women in railroad service, with few changes. On October 1, 1919, there was a reduction of but six-tenths of one per cent, compared with the previous quarter.

On October 1 the total number of women employed in railroad service was 81,803, compared with a maximum number employed during the war of 101,785. During the year to October 1, 1919, the percentage of decrease in those employed was 19 per cent. Clerks, including ticket sellers, accountants and cashiers, showed the smallest decrease, namely, 12.2 per cent. However, as of October 1, 55 Class I roads reported that they had increased the number of their women employees, these additions amounting to 1,151, chiefly in clerical work.

During the year the employment of women as laborers and in other capacities requiring too great muscular exertion was discontinued.

## Orders of Regional Directors

**UNECONOMICAL CAR-LOADING.**—The Central Western regional director, Supplement 8 to Circular 218, calls for better use of cars. During the last ten days of November, 4,463 cars were loaded with salt, the tonnage of which was sufficient for only 3,718 cars had the carrying capacity been fully utilized. The order suggests that instructions be renewed and careful consideration be given to the matter of double and triple loading.

**Bad Order Cars.**—The Northwestern regional director, file 16-1-101, states that the loss of time over the holiday season, together with severe weather experienced during this period, has resulted in a very large increase in freight cars waiting for repairs, and suggests that every possible effort be made to make all bad order revenue cars available for service as soon as possible.

**Overtime for Train and Enginemen.**—Circular 95 of the Northwestern regional director states that, effective December 1, 1919, under the provisions of Supplements 24 and 25 to General Order 27, time and one-half for overtime has been granted to train and enginemen in all classes of freight service and suggests that a careful study be made of operating methods and facilities to determine whether the service performed on a punitive rate basis is sufficiently valuable to all railroads to warrant the working of men in excess of hours in which service can be required at the single time rate.

**Regulations for the Enforcement of National Prohibition.**—File 49-1-117 of the northwestern regional director contains advance information on the rules and regulations which are now being prepared by the Federal Prohibition Director relative to the transportation of liquor. According to the circular, these rules and regulations contemplate, in addition to the consignor securing from the local prohibition director a permit to make the shipment and the consignee furnishing a permit to receive it, that each railroad shall secure a blanket permit to engage in the transportation of such liquors as may be lawful and that records shall be kept at shipping points and destination of the shipments and deliveries.

SENATOR NELSON, on January 10, presented in Congress a memorial from Dr. C. H. Mayo, of Rochester, Minn., remonstrating against the adoption of the provision in the Esch railroad bill, which is designed to prohibit the issuance of railroad passes to local surgeons who do not give substantially all of their time to railroad work.



Photo from International

A Sanitary Disinfecting Car on the Trans-Siberian



## National Public Works Department Association Convention

A CONVENTION of the National Public Works Department Association was held in Washington, D. C., on January 13 and 14, 1920, to review the work of 1919, give the opportunity for the presentment and discussion of committee reports and to formulate policies for the ensuing year. This association had its inception in April, 1919, when a joint engineering meeting was held in Chicago to consider the proposal to advocate the creation of a National Department of Public Work. Seventy-four technical societies with a total membership of 105,000 were represented at the Chicago meeting, which resulted in the formation of an Engineers, Architects and Constructors' Conference, and subsequently in the association named above.

During the meeting in Chicago, the activities of which were recorded in the *Railway Age* for May 2, 1919, page 1103, three permanent committees were formed. These were: An executive committee, one to draft a bill for the creation of a Department of Public Works, and a committee to conduct a campaign for the passage of the bill. The convention held this week was featured by the reports of these committees. The bill drafted is known as the "Jones-Reavis" bill, and was introduced into Congress on June 25, 1919. It changes the name of the Department of the Interior to the Department of Public Works, and provides for the transfer of non-engineering activities of the Interior Department to other branches of the Government and transfers certain bureaus concerned with construction activities now attached to the departments of War, Treasury, Commerce and Agriculture to the Department of Public Works. Its object is to create a department of the Government with an organization technical in character, which would permit of a unified control over public works and a grouping of bureaus along functional lines in the interest of economy in the administration of the construction activities of the Government.

To direct the attention of the public to the situation which resulted in the movement a campaign by states has been carried on by the Association and the reports submitted to the convention by the various state committees constituted an instructive and interesting feature of the session held Tuesday morning. These reports embraced the methods followed in arresting public attention, the measures taken to keep Congress advised of public sentiment and the results.

The evening session on Tuesday was devoted to addresses by Hon. Frank C. Reavis, House of Representatives, and Gen. R. C. Marshall, Chief of the Construction Division, U. S. A. Congressman Reavis pointed out the practical results to be achieved by a National Department of Public Works, drew particular attention to the duplication of work by the several uncorrelated bureaus having to do with public works under the present methods of administration of such work, and dwelt at length on the increased cost and decreased efficiency resulting from this divided responsibility. Gen. Marshall outlined in an interesting and striking way the economies which should result to the Government from the adoption of standard construction specifications in the place of the many and varied ones now enforced by the various bureaus in charge of construction work. He pointed to the work of the Construction Division of the Army, which adopted standard specifications, as concrete evidence of the economies that might be expected to accrue from this source alone with the construction work of the Government under one head as provided for in the "Jones-Reavis" bill.

Wednesday's program was arranged to provide an opportunity for the members of the various state teams to confer with members of Congress in reference to the bill, in the morning, and to report back to the convention in the afternoon. The reports of the state teams were followed by a discussion of ways and means for financing the Association

and the reports of the committees on Text of Bill, New Organization, Nominations and Election of Officers and Resolutions. The committee on Text of Bill recommended that the text be left unchanged, and the recommendation was accepted by the convention as was the suggestion of the Committee on Organization that the scope of the Association be enlarged to include representatives from business organizations, professions other than those already included, and social and other organizations.

M. O. Leighton was unanimously re-elected chairman of the Executive Committee

## Governor Allen Indicts Brotherhood Leaders

G OVERNOR HENRY J. ALLEN of Kansas, in speaking to to the extraordinary session of the Kansas State Legislature, called on January 5, 1920, charged the leaders of the four railway brotherhoods with attempting to control the government through coercion and with having "initiated the present insane notion that an organized minority is greater than government itself." The extraordinary session was called primarily in the hope that a "court of industrial relations" might be established which will provide a substitute for strikes and lockouts and protect the public against the abuses which now come upon it during the course of industrial controversy. In his message Governor Allen outlined the industrial legislation which he believes should be enacted in the state of Kansas to avoid such situations as recently arose during the strike of bituminous coal miners. After producing statistics showing the number of strikes and the cost of these actions to both the public and the industries concerned, especially during the recent coal strike, he said:

"The miners are being urged by a lot of professional labor officers who live off the exploitation of labor controversies, who fight this legislation because they realize that with its enactment their peculiarly radical type of leadership will be unnecessary. From all over this state there is coming a flood of protest from various union bodies who are not concerned in this bill, who do not belong to the essential industries affected by it and who have made absolutely no study of the plan, but who are being urged by professional labor leaders to protest. Those most active in leading the fight against the bill are the officers of the four railway brotherhoods.

"These gentlemen, who constitute the aristocracy of organized labor, have less real concern in the proposed bill than any of the other essential industries touched by the bill, because of the interstate character of their employment. Nevertheless, they are leading this fight because of the orders they have received from their national leaders that no legislation making it unnecessary for organized labor to use the club of the strike is to be permitted. These men established the first sad record in the United States of government by coercion. They initiated the present insane notion that an organized minority is greater than government itself when they brought about by intimidation the enactment of the Adamson law. This victory over government, obtained while these leaders held their stop watches on Congress, gave rise to the belief on the part of the more radical labor leaders that the general public had no rights which labor was bound to respect. These leaders have now come to Kansas in the hope that they may, by reminding the legislative members of the political power of their organization, secure from intimidated legislators the same sort of victory in Kansas they forced in Washington. I have a feeling that these enthusiastic promoters of industrial warfare upon the public underestimate the Kansas spirit."

## General News Department

Canadian currency, according to a recent order, must not be accepted by employees of government operated railroads because of the fluctuation of exchange rates.

Lewis Pilcher, secretary of Section 7 (Freight Claims), of the American Railroad Association, has moved his office from Richmond, Va., to Chicago, Ill., where his address is 431 South Dearborn street.

The Utah Associated Industries have addressed a letter to senators and representatives in Congress advocating the early return of railroads to their owners, with legislation that will make possible the successful operation of the lines under private ownership.

At the Western Railway Club, Chicago, Monday evening, January 19, Leslie R. Pyle, supervisor of fuel conservation in the Central Western Region, will read a paper on "The Preparation of Locomotives at Enginehouses and Shops and Its Relation to Fuel Economy."

H. T. Swegman, chief of the bureau of claims in the legal department of the Pennsylvania Lines, with office at Chicago, has been elected president of the Chicago Steam Railroad Claim Conference, an organization composed of the members of the claim office staffs of the roads centering in Chicago.

Ernest R. Dewsnup, professor in the department of transportation of the University of Illinois, has been elected to the chair of commerce at the University of Liverpool, Liverpool, England. Mr. Dewsnup, who is well known in transportation circles of the United States as a result of his investigations and writings on transportation subjects, will sail for England in February.

The United Mine Workers of America at the recent reconvened convention at Columbus, Ohio, voted affirmation of the action of the union's international officers in accepting President Wilson's proposal to settle the recent strike of bituminous coal miners. According to reports of the meeting the vote was taken only after three days of debate on the motion, which was presented by the head of the Pennsylvania miners' organization.

The American Association of Engineers, Chicago, has made arrangements with the producers of six screen weeklies whereby the association will furnish lists of engineering work, photographs of which will be of interest to the public. The motion picture companies will then arrange for photographs to be taken for display in their firms. The association requests the co-operation of engineers in calling to their attention projects which would be of interest in this way.

Senator Hoke Smith, of Georgia, has offered in the Senate a resolution calling on the Interstate Commerce Commission to investigate and report upon living conditions of trainmen who are compelled to lie over between trips at terminals of railroads, and also to investigate "the feasibility on the part of railroad companies of furnishing to their men such accommodations." One of the Senator's constituents has thus far failed to induce the Railroad Administration to pay him a large salary for supervising the work of improving the conditions referred to.

Herbert C. Hoover, head of the civilian relief commission for Europe and at present vice-chairman of the President's Industrial Commission, will be the guest of the Western Society of Engineers, Chicago, the last week in February at which time the Washington Award, founded by John A. Alvord, a member of the society, will be presented to him for "pre-eminent services in promoting the public welfare as chairman of the Commission for Relief of Belgium and as

Food Administrator of the United States." Mr. Hoover has intimated that the final report of the Industrial Commission will be the topic on which he will speak on this occasion.

The nation-wide strike of steel workers, which went into effect on September 22, 1919, was officially ended on January 9, according to an order issued by the national committee of the steel workers' union. The order declared the committee's decision was forced by ruthless misuse of power by the steel corporation, the press, the courts, federal troops, state police and public officials in denying steel workers the right of free speech and free assemblage and the right to organize. The order added that the union will launch an immediate campaign to further organize steel workers.

Engineering Council has sent letters to 50,000 engineers outlining the character of work under way, and in immediate prospect, and soliciting funds for the support of this work. A tentative budget which has been prepared contemplates the receipt of \$15,000 from member societies and \$30,000 from general contributions; and expenditures of \$12,000 each for the general office at New York and for the Washington office, which latter has in charge the campaign for the creation of a National Department of Public Works. The total expenditures for 1919 were \$50,000, half of which went for the support of the Washington office and \$13,500 for the engineering societies' employment bureau.

Senator Norris, of Nebraska, has introduced in the Senate a resolution calling on the Interstate Commerce Commission to report to the Senate, first, to what extent, if any, part or all of the proceeds from the sale of stocks or bonds by railroads have been used for other than proper and legitimate purposes, giving in each instance the railroad, the extent of the practice, the purposes to which the proceeds were used and the names of the officers guilty; and, second, to what extent, if any, directors and other officers of interstate railroads are directors or other officers of corporations having business dealings or financial relations with such railroads, with particulars as to such relationship and the effect it may have had.

### Shades of Bill Carlisle!

The ticket agent of the Southern Pacific at Stockton, Cal., was held up recently by a lone masked bandit and forced at the point of a gun to turn over approximately \$275 in currency. The holdup occurred as the agent was closing the office for the night, and the bandit, after forcing him to hand over all of the money in sight, caught a freight train which was passing at the time.

### Committee for Registering Engineers

Engineering Council in October, 1918, authorized the creation of a committee to investigate the subject of licensing or registering engineers, architects and surveyors. After 14 months' work the committee submitted its report accompanied by a recommended uniform registration law at the December meeting of the council which voted to receive the report and to give it and the proposed law immediate and wide publicity. The report shows that ten states have already enacted laws registering engineers and at least 18 states have laws registering architects. These laws are not uniform in character and have often proved a serious detriment. The recommended law, framed with a view to its adoption, uniform, throughout the states, creates a state board of registration consisting of seven members appointed by the governor, of which at least three shall be professional engineers and three architects, with a term of office of four years. In the main, all engineers, architects and surveyors over 25 years



of age who submit satisfactory evidence to the board that they are qualified to practice engineering, etc., will be eligible for registration when the application is accompanied by the proper fee. Certificates of registration will be issued which may be revoked or re-issue refused by the board for any gross misconduct or incompetency, charged and proved against a registered engineer, architect or surveyor.

### Material Handling Machinery

The Material Handling Machinery Manufacturers' Association will hold a convention at the Waldorf-Astoria Hotel, New York City, on Thursday and Friday, January 29 and 30. All persons interested in the art of mechanical handling are invited to attend. This association is composed of and is organized in the interest of makers of cranes, hoists, winches, conveyors, industrial trucks, tractors, bulk handling machinery, elevators, motors, electrical control apparatus, batteries, ball-bearings, wire-rope, manilla rope, hand lift trucks, etc. There will be a luncheon at the hotel on Thursday. Information may be had from Z. W. Carter, secretary, 35 West 39th street, New York City.

### Fire Hazards

The Southwestern regional director, by circular 261, citing careless handling of torches, orders that: (1) The use of torches be confined to "under and around" locomotives; (2) That particular care be exercised when using torches both as to handling and storing; when not in use they should be kept in metal receptacles, never in wooden lockers; (3) That where electricity is available electric lights should be installed so as to make torches unnecessary. The director recommends the following rules: That greasy waste, coal oil torches, oils, and matches be not stored in wooden clothes lockers, but in metal boxes or racks; that all clothing be hung up, and that frame cupboards shall not rest on floors; cupboards must have slanting tops, wire screen or ventilated doors, and be built into the wall so that rubbish will not accumulate behind them. Clothes cupboards should not be permitted in paint or smith shops, foundries or oil houses, unless made of solid sheet iron with proper ventilation and set on fireproof supports. All cupboards must be inspected and cleaned at least once each month.

### New Union Station at Cleveland to be Started

Definite announcement has been made by the Cleveland (Ohio) Union Terminals Company of its intention to begin the construction of a \$50,000,000 union passenger station at Cleveland early in the present year. On December 30 the Cleveland City Council adopted an ordinance which made possible the construction of the new station without the co-operation of the Pennsylvania. This requires that work be begun by March 6, 1920, the station to be completed within five years and the lines within the city limits to be electrified in ten years. Negotiations for the construction of a new union station at Cleveland have been in progress for several years. According to the Cleveland Union Terminals Company, the New York Central and the Cleveland, Cincinnati, Chicago & St. Louis are officially committed to the project and it is expected that their declaration of intention to accept the charter granted by the city will be filed in the immediate future. The Erie, the New York, Chicago & St. Louis and the Wheeling & Lake Erie are, according to these reports, pledged to accept the plan and only the Pennsylvania and the Baltimore & Ohio have failed so far to sanction the project. A description of the proposed new station appeared in the *Railway Age* of March 21, 1919, page 755.

### National Agreement for Clerks

A national agreement covering rules and working conditions for railroad employees represented by the Brotherhood of Railway & Steamship Clerks, Freight Handlers, Express and Station Employees has been signed between the director general of railroads and the officers of that organization, effective January 1,

1920, and to continue in force during the period of federal control. The request for a national agreement for these employees was made last summer and has been under consideration since that time, first, by a committee representing the regional directors and the employees, next, by the Board of Railroad Wages and Working Conditions and, finally, between the director general and members of his staff and representatives of the clerks' organization.

The agreement just signed covers rules relating to seniority, discipline, etc. The chief item in the agreement is that time and one-half for overtime after eight hours will be paid to all employees affected except certain employees having light or intermittent work whose present monthly pay is preserved for the present hours of work. The agreement also provides for giving all employees covered one day's rest every week as far as practicable and where the operation of the railroad would not be affected thereby.

### Conferees Make Progress on Railroad Bill

The conferees on the railroad bill have practically reached an agreement on the comparatively minor differences between the Senate and the House bills, according to an announcement by Senator Cummins, and on Monday, January 12, began the discussion of the more controversial features of the proposed legislation, which are involved in the provisions of the Cummins bill that were not in the Esch bill. These include the percentage rule of rate-making, limitation of earnings, compulsory consolidation, transportation board and federal incorporation, which are enough to keep the conference committee busy without definite results for several days. In a general way they represent the ideas which the Senate committee put into its bill and which the House committee left out of its bill, although the House committee did propose a general rule of rate-making which was eliminated by the House, and therefore they include the points on which there is a sharp difference of opinion between the Senate and House conferees, both of which have already been backed up by the votes of their respective houses. It is generally believed that some at least of these controversial provisions of the Cummins bill will be sacrificed in order to gain the acceptance of the others, but at this writing the discussion in the conference committee had not progressed sufficiently to indicate which, if any, would be most likely to prevail, or to what extent they might be modified to make them more acceptable. By tacit consent, the labor sections, including the prohibition against strikes, were postponed for discussion after the financial provisions have been considered.

### Speedy Return of Railroads Advocated

The directors of the Minneapolis (Minn.), Civic & Commerce Association have adopted resolutions advocating the speedy return of railroads to private ownership. They ask:

- (1) That Congress make equitable provision for re-establishing railway credit; that until railway credit has been so re-established under supervision of the Interstate Commerce Commission, the present guaranteed compensation be continued, and if necessary the government loan capital to the carriers at reasonable rates of interest.
- (2) That the Interstate Commerce Commission be authorized to fix minimum and maximum rates, and in co-operation with the state railroad commissions, co-ordinate interstate and state rates;
- (3) That, under supervision of the Interstate Commerce Commission, an agency be created to hear and arbitrate wage disputes; and that lockouts and strikes be prohibited during the consideration and determination of disputes;
- (4) That the Interstate Commerce Commission be enlarged so as to properly exercise all of its present functions and in addition be given plenary power over:—

- a—The issuance of all railway securities.
- b—The transportation needs, facilities and service throughout the country.
- c—The use, control and supply, as well as the movement, distribution and operation of trains, including re-distribution of traffic necessitated by congestions and the joint use of terminals.
- d—To prohibit extension of present lines or construction or acquisition of new lines by any carrier until it has obtained from the Commission a certificate of public necessity and convenience.
- e—To require the construction of docks, and of rail connections between rail and water carriers.





## REVENUES AND EXPENSES OF RAILWAYS

EIGHT MONTHS OF CALENDAR YEAR 1919

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) last year.
		Freight.	Passenger.	Total (Inc. misc.)	Way and structures.	Equip. ment.	Traffic.					
Ala. & Vicks.	141	\$1,187,747	\$501,630	\$1,809,952	\$343,085	\$415,167	\$15,081	89.33	\$193,073	\$88,834	\$104,058	-\$95,491
Ala. Great Southern.	312	4,713,304	1,620,929	6,690,106	980,356	1,688,786	106,021	84.62	1,028,376	122,658	834,990	-\$43,549
Ann Arbor	301	2,131,193	473,344	2,752,124	436,072	840,346	1,317,435	84.58	427,868	126,400	301,969	126,446
Ariz. Eastern	377	1,943,291	348,230	2,459,585	605,965	1,000,000	171,088	76.99	548,725	136,255	418,116	163,319
Atchafalaya & Santa Fe.	8,643	74,119,493	29,264,649	108,923,545	15,301,334	25,294,609	1,128,440	76.59	25,489,052	4,399,608	21,089,313	8,556,063
Atlanta & W. P.	93	829,671	771,705	1,779,545	216,651	327,645	679,792	74.22	458,760	68,000	390,718	26,896
Atlanta, Birm. & Atlantic.	639	2,427,232	622,439	3,256,676	770,160	1,014,947	1,905,700	118.08	589,096	128,000	718,370	435,053
Atl. Coast Line.	4,861	26,200,738	12,599,925	41,522,311	6,196,197	8,004,737	18,538,293	84.62	6,384,018	1,685,000	4,699,018	3,094,286
Balt. & Annap.	177	969,866	2,100,415	3,213,775	364,174	391,280	1,478,316	70.22	956,993	96,000	860,993	140,931
Baltimore & Ohio.	5,151	83,787,569	21,994,371	113,901,884	17,590,319	25,294,609	1,128,440	96.21	4,311,107	2,945,153	1,365,943	5,042,089
Baltimore & Ches. Term.	90	3,052	1,201,013	262,965	335,409	335,409	9,005	141.32	496,330	223,000	719,900	46,279
Baltimore & Atlantic.	87	663,591	357,506	1,057,535	115,251	341,428	8,418	104.46	47,206	26,135	73,341	81,680
Bangor	632	2,516,892	592,063	3,271,970	690,664	911,019	31,858	94.05	194,675	168,000	27,675	230,732
Beaumont, Sour Lake & W.	118	609,693	196,784	846,435	220,440	155,618	14,897	95.63	36,989	21,600	15,389	275,604
Belt. Ry. Co. of Chicago.	31	1,034,065	302,415	861,402	951,561	2,571,487	2,709,703	90.31	224,665	123,744	100,921	24,878
Bessemer & Lake Erie.	217	714,383	16,790	762,939	310,343	316,361	10,634	74.69	2,186,309	116,000	2,070,204	389,091
Birmingham & Gulf.	37	784,065	16,790	762,939	310,343	316,361	10,634	118.99	144,156	55,095	199,252	1,212,846
Birmingham Southern	29	292,607	390,114	682,721	49,818	49,818	184,970	76.58	91,340	14,304	77,036	107,737
Boston & Maine.	2,258	26,358,307	14,325,695	45,310,568	6,353,397	8,654,375	327,366	91.55	3,825,472	1,409,724	2,415,748	1,053,941
Buff. & Susq.	296	1,335,529	55,942	1,475,031	332,271	728,287	141,127	111.12	164,157	26,000	190,157	260,771
Buff. Roch. & Pitts.	589	7,719,536	1,043,692	9,110,518	1,542,126	3,204,975	4,514,123	106.03	549,510	216,000	766,042	1,402,005
Canadian Pac. Lines in Me.	233	1,360,519	406,426	1,862,526	408,560	427,830	20,817	111.26	209,901	88,000	297,901	43,196
Carolina, Clinchfield & O.	282	3,479,041	270,246	3,819,365	610,647	947,765	37,692	76.07	913,709	130,400	783,229	178,200
Central of Ga.	1,918	8,372,704	4,251,329	13,822,020	2,640,053	7,908,777	275,464	87.82	1,689,985	479,177	1,210,407	1,493,726
Central of New England.	301	3,801,589	1,933,061	4,179,876	1,026,085	790,037	1,974,399	94.11	246,184	128,000	117,792	321,400
Central of N. J.	685	21,036,229	5,608,760	28,764,109	3,424,812	7,202,394	13,729,045	87.87	3,545,542	1,259,538	2,285,937	2,485,417
Central Vermont	411	2,666,178	685,978	3,680,136	760,840	930,278	140,735	114.55	530,393	130,200	400,193	393,220
Charlotte & W. Carolina.	342	1,432,713	1,070,701	2,503,414	353,843	361,131	35,292	90.35	186,376	138,000	47,376	163,228
Ches. & Ohio.	2,502	34,353,830	10,096,791	47,126,902	7,560,962	10,202,665	292,220	79.58	9,574,323	1,363,000	8,211,323	1,080,538
Chicago & Alton.	1,050	11,100,851	4,338,836	16,276,672	2,777,776	4,389,809	203,177	91.13	1,442,414	507,974	934,440	1,203,722
Chicago & Eastern Ill.	1,131	11,559,907	3,203,502	15,999,698	2,517,744	5,636,391	6,921,108	98.57	226,228	636,092	413,071	1,162,877
Chicago & Erie.	269	5,369,242	813,284	6,179,796	793,609	1,133,886	86,690	85.24	991,414	239,287	752,038	834,129
Chicago & N. W.	8,090	57,267,726	22,954,531	87,698,260	13,547,217	18,012,586	587,407	85.45	12,739,639	3,800,000	8,934,002	2,125,524
Chicago, Burl. & Quincy.	9,372	66,512,328	22,954,531	96,717,098	14,959,514	19,315,185	715,877	78.79	20,507,384	3,592,820	16,894,740	59,817
Chicago Great Western.	1,496	8,903,427	1,820,365	13,903,947	3,134,012	4,889,809	209,314	82.79	1,669,242	458,314	1,209,366	235,363
Chicago, Indianapolis & Louisville.	657	5,260,985	1,076,231	7,827,006	910,976	1,871,763	3,302,221	87.99	1,346,755	303,871	1,041,699	253,479
Chicago Junction.	12	2,368,090	2,368,090	4,736,180	545,560	381,592	57,323	98.22	431,398	22,332	453,808	250,337
Chicago, Milw. & St. Paul.	10,647	66,575,557	20,082,835	95,125,159	14,854,570	27,020,886	44,323,372	94.27	5,446,412	4,198,589	1,226,875	2,280,194
Chicago, Peoria & St. Louis.	247	773,048	199,871	1,039,612	295,478	508,451	70,219	150.76	527,742	56,566	584,323	428,663
Chicago, Rock Island & Gulf.	474	2,124,820	675,582	2,964,580	530,896	568,856	1,356,861	88.16	350,737	105,239	245,164	419,219
Chicago, Rock Island & Pacific.	7,594	44,726,881	20,292,512	69,019,105	11,302,213	15,517,225	819,704	86.41	9,377,140	2,805,644	6,567,323	736,859
Chicago, St. Paul, Minn. & Omaha.	1,749	11,407,712	4,921,652	17,224,825	3,120,914	4,833,882	163,936	85.11	2,363,390	829,884	1,533,506	145,551
Chicago, Terre Haute & S. E.	374	2,408,817	174,948	2,583,765	434,419	1,168,154	230,016	105.32	442,781	116,000	326,781	436,244
Cincinnati, Indianapolis & West.	321	1,352,957	426,967	1,969,513	380,153	587,952	109,781	101.33	209,468	81,963	291,431	194,351
Cincinnati, Lebanon & Nor.	76	535,101	60,050	708,286	138,206	151,659	10,724	101.33	9,485	34,654	44,139	39,611
Cincinnati, N. O. & Texas Pac.	337	7,643,269	2,499,009	10,669,227	1,421,165	3,357,922	184,008	88.12	1,266,272	306,119	957,045	785,968
Cincinnati Northern.	251	1,595,516	152,145	1,897,338	293,684	421,866	38,089	75.99	455,447	71,900	383,391	269,154
Cleve., Cin., Chicago & St. L.	2,395	30,997,641	11,145,738	45,617,372	5,826,066	8,917,702	608,625	77.40	10,305,276	1,461,000	8,837,739	727,054
Colorado & Sou.	1,100	6,394,180	1,625,569	8,476,765	1,411,540	1,930,339	3,185,202	81.81	1,541,897	376,000	1,162,470	508,507
Colorado & Wyoming.	41	190,135	9,404	205,549	86,544	141,092	339,178	80.29	146,841	32,000	114,841	46,818
Copper Range.	141	509,878	98,241	657,660	201,242	138,631	22,534	101.59	10,484	49,905	60,390	105,560
Cumberland Valley.	163	2,874,818	570,468	3,680,072	660,063	847,537	1,465,416	84.81	558,680	68,581	489,829	693,942
Del. & Hudson.	875	19,199,547	2,100,772	22,558,368	2,843,615	6,257,058	145,708	90.31	2,186,437	480,000	1,699,232	837,171
Del. Lack. & West.	955	33,733,626	8,173,583	46,761,204	4,734,114	9,676,524	329,837	77.17	10,672,694	2,494,148	8,158,634	1,241,369
Denver & Rio Grande.	2,611	14,500,498	4,347,747	20,045,011	3,244,961	5,014,055	155,762	81.09	3,790,259	845,000	2,945,257	346,712
Denver & Salt Lake.	255	1,441,428	299,903	1,795,205	598,169	668,272	7,654	130.54	548,434	72,000	620,522	266,872
Detroit & Mackinac.	381	725,172	253,548	1,034,379	174,787	285,818	21,225	102.39	24,766	61,919	86,686	130,093
Detroit & Toi. Shore Line.	61	1,517,133	1,517,133	1,517,133	148,441	148,441	8,202	48.87	777,148	76,396	700,745	219,548
Duluth, Tol. & Iron Range.	456	2,127,080	102,178	2,378,809	711,911	772,817	21,534	113.33	364,760	65,222	430,329	86,545
Duluth & Iron Range.	292	5,105,681	182,751	5,688,113	646,461	720,855	3,515	51.33	2,768,142	287,797	2,479,692	142,677
Duluth, Miss. & Nor.	410	12,740,046	357,051	13,501,526	1,220,142	1,043,801	17,188	85.78	8,670,543	492,951	8,177,592	704,184
Duluth, South Shore & Atl.	599	2,066,727	794,337	3,054,726	650,420	847,537	46,571	92.74	2,186,437	163,000	58,589	122,155
Duluth, Winnipeg & Pac.	178	1,024,553	190,225	1,258,827	241,009	240,527	1,537,015	90.31	121,722	63,459	57,389	31,402
East St. L. Connecting.	3	.....	.....	.....	118,398	193,596	513,811	107.22	357,601	20,745	78,346	31,547
East, Joliet & East.	828	11,364,213	91	13,276,506	1,200,331	1,610,113	52,595	35.07	3,507,146	435,771	3,071,460	201,238
El Paso & S. W.	1,027	6,309,318	1,408,890	8,136,649	1,305,421	1,610,113	77,552	68.15	2,562,117	429,446	2,132,215	1,561,742
Erie	1,989	43,984,555	9,222,906	58,416,831	6,994,558	18,632,684	495,375	97.70	1,341,354	2,051,097	725,900	3,718,050
Florida East Coast.	764	3,889,685	2,110,945	6,743,664	1,114,673	1,207,033	62,733	84.25	1,061,745	304,813	757,229	1,012,723
Florida Johnston & Groversville.	83	269,817	526,963	830,483	87,517	70,903	5,176	62.52	41,256	44,200	267,056	15,890
Ft. Smith & West.	253	694,699	213,818	973,305	190,640	244,106	29,474	90.18	95,561	40,000	54,740	12,113

## REVENUES AND EXPENSES OF RAILWAYS

EIGHT MONTHS OF CALENDAR YEAR 1919—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Maintenance of way and structures.		Operating expenses			General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) last year.
		Freight.	Passenger.	Total.	(inc. misc.)	Way and structures.	Equip. ment.	Traffic.	Trans- portation.							
Ft. Worth & Denver City.....	454	\$4,570,285	\$2,134,569	\$6,704,854		\$656,027	\$1,328,793	\$35,560	\$2,563,373	\$197,567	\$4,834,231	69.25	\$2,145,797	\$151,988	\$1,992,764	\$1,084,780
Ft. Worth & Rio Grande.....	235	490,027	402,020	892,047		954,591	220,355	1,174,946	512,807	48,305	972,324	101.85	17,733	24,452	42,513	86,633
Galv., Harris & San Ant.....	1,381	9,620,207	3,737,159	13,357,366		13,997,825	2,086,147	140,860	5,341,817	426,032	11,187,462	79.92	2,810,363	423,141	2,387,221	1,751,201
Georgia.....	715	2,118,156	1,218,156	3,336,312		556,582	202,390	217,746	12,636	12,636	513,580	92.27	43,003	100,000	56,997	231,084
Georgia & Florida.....	328	4,411,777	1,218,156	5,630,933		3,891,876	614,730	63,351	1,908,147	133,671	3,178,930	81.68	712,946	48,600	664,291	659,449
Georgia, Sou. & Fla.....	348	4,411,907	159,278	4,571,185		639,074	220,973	15,694	410,573	44,493	851,405	133.22	212,331	33,619	245,950	203,099
Grand Rapids & Ind.....	402	1,820,649	771,013	2,591,662		2,830,425	470,104	48,474	1,338,665	84,467	2,603,501	91.98	226,924	109,518	117,406	68,601
Grand Trunk Line in N. E.....	569	3,383,295	1,371,041	4,754,336		5,159,259	718,969	83,129	2,511,499	176,992	4,664,256	90.41	495,004	206,453	288,551	111,764
Grand Trunk West. Lines.....	1,701	10,645,003	2,380,747	13,025,750		14,175,305	750,130	23,626	1,525,196	99,564	3,046,731	124.06	590,992	98,000	688,992	137,082
Great Nor. & W.....	8,241	47,602,003	12,635,971	60,237,974		66,157,951	11,962,106	135,118	6,383,884	379,232	13,767,631	80.25	2,796,668	401,829	2,395,839	2,800,342
Green Bay & W.....	252	574,821	132,274	707,095		1,354,102	189,271	44,325	279,571	1,226,775	54,979,660	83.10	11,178,291	3,554,286	7,618,682	4,835,050
Gulf & Ship Island.....	307	1,095,958	3,402,368	4,498,326		423,296	363,782	9,170	335,071	15,450	714,095	94.69	40,006	85,121	125,127	103,588
Gulf, Colo. & S. Fe.....	1,934	8,622,448	3,402,368	12,024,816		12,723,580	2,329,976	129,913	5,603,193	390,795	11,749,444	88.61	1,448,653	569,341	879,312	1,486,038
Gulf, Mobile & Nor.....	424	1,306,531	354,991	1,661,522		1,751,939	420,568	48,483	827,032	78,500	1,736,034	99.09	15,905	89,178	105,083	259,035
Hocking Valley.....	350	5,963,148	773,687	6,736,835		7,199,904	848,187	44,933	2,494,227	169,289	5,960,766	82.78	1,239,137	361,782	877,355	543,699
Houston & Texas Cent.....	847	3,693,256	1,668,495	5,361,751		5,676,679	1,094,471	59,337	2,431,043	157,372	4,790,074	84.38	896,605	275,931	612,365	915,501
Houston E. & W. Texas.....	190	1,074,392	359,818	1,434,210		1,501,079	277,991	79,539	705,529	33,885	1,200,413	79.96	300,666	50,490	249,256	85,160
Illinois Central.....	4,789	48,398,398	15,899,770	64,298,168		69,055,673	12,100,056	613,402	28,872,332	1,790,558	62,016,782	89.80	7,038,890	3,280,042	3,758,848	1,239,170
Indiana Harbor Belt.....	116	.....	.....	.....		4,182,833	737,812	13,802	2,694,619	133,628	4,377,568	104.66	194,736	79,933	274,678	143,924
International & Great Nor.....	1,159	6,389,588	2,128,690	8,518,278		9,082,135	2,404,268	101,378	4,621,811	329,956	9,677,534	106.55	595,398	233,500	828,832	1,810,376
Kan. City, Mex. & Orient.....	272	650,579	141,781	792,360		832,205	335,836	11,922	477,090	59,756	1,198,898	144.06	366,692	50,051	416,743	135,908
Kan. City, Mex. & Orient & Texas.....	465	544,857	112,072	656,929		697,664	268,893	15,490	487,113	61,878	1,198,898	164.80	452,122	39,906	492,030	311,448
Kan. City Southern.....	774	7,272,433	1,566,934	8,839,367		9,564,997	1,635,198	142,055	3,964,853	331,497	8,216,690	85.90	1,348,307	517,784	826,212	1,424,183
Kan. City Terminal.....	26	.....	.....	.....		881,400	131,769	.....	371,114	10,427	709,740	80.52	171,659	154,067	17,516	22,354
Kanawha & Mich.....	176	2,239,569	456,237	2,695,806		2,782,419	410,363	19,911	1,045,096	103,280	2,609,472	93.61	177,947	145,926	32,017	942,029
Lake Erie & Western.....	902	5,349,110	521,550	5,870,660		6,149,154	1,110,743	92,801	2,774,505	190,357	6,063,652	97.63	145,502	258,700	111,414	459,682
Lake Superior & Ishpeming.....	34	557,737	1,905	559,642		627,588	183,114	1,604	133,814	20,298	452,764	72.14	174,854	27,082	147,732	302,813
Lehigh & Hud. Riv.....	96	1,578,141	32,252	1,610,393		1,670,262	207,756	37,385	124,443	46,672	1,352,918	81.00	317,343	41,100	276,243	59,436
Lehigh & N. E.....	230	2,218,550	12,689	2,231,239		2,351,046	514,214	19,781	853,073	75,875	1,802,601	76.67	548,445	63,191	485,254	400,982
Lehigh Valley.....	1,435	32,732,547	4,620,745	37,353,292		40,973,756	6,027,978	335,031	19,075,990	864,231	37,440,662	91.11	3,653,093	1,245,850	2,407,243	950,747
Long Island.....	398	3,865,616	11,345,187	15,210,803		16,771,375	2,200,601	97,842	7,133,920	380,557	13,179,080	78.58	3,592,296	732,977	2,859,319	912,640
Los Angeles & Salt Lake.....	1,168	7,658,698	2,744,524	10,403,222		11,031,123	1,807,550	143,995	3,694,932	241,135	9,443,421	76.94	2,483,743	544,315	1,939,428	378,461
Lou. & Ark.....	302	1,007,599	299,014	1,306,613		1,355,385	392,627	26,877	617,795	48,838	1,409,869	104.01	54,484	90,858	145,342	259,250
Lou., Ry. & Navigation Co.....	349	1,868,574	289,941	2,158,515		2,284,129	620,236	29,847	1,067,758	62,077	2,207,413	96.64	76,717	112,000	35,283	364,825
Lou. Western.....	207	1,652,482	896,865	2,549,347		2,659,544	473,639	26,457	762,336	86,246	1,772,342	66.64	887,202	73,560	813,461	494,505
Lou. & Nash.....	5,013	48,738,216	16,442,625	65,180,841		68,746,669	17,421,036	914,588	28,291,487	1,507,789	59,841,647	87.05	8,905,022	2,044,154	6,860,868	1,086,049
Lou., Hend. & St. Louis.....	199	1,302,989	518,125	1,821,114		1,900,521	263,034	47,068	749,220	59,601	1,520,982	80.02	379,540	33,000	346,064	98,094
Maine Cent.....	1,216	7,181,777	3,263,557	10,445,334		11,249,298	2,049,616	97,760	6,475,408	286,753	11,507,076	101.78	200,779	604,986	805,983	663,226
Md., Del. & Va.....	82	536,489	823,787	1,360,276		881,022	74,636	5,021	578,141	16,702	913,698	103.70	32,676	14,025	46,701	20,962
Mich. Cent.....	1,861	32,134,272	12,965,235	45,099,507		49,210,377	6,585,417	521,674	18,578,935	888,917	36,229,488	74.43	12,381,089	1,540,000	11,036,957	2,379,174
Midland Valley.....	388	1,802,969	643,463	2,446,432		2,538,208	534,903	19,572	335,393	95,050	2,028,750	79.92	509,459	55,274	454,185	97,304
Minn. & St. Louis.....	1,646	6,105,019	1,828,357	7,933,376		8,320,564	1,495,743	82,254	4,142,064	236,035	8,012,513	96.29	308,035	407,002	102,869	136,038
Minn., St. Paul & S. Marie.....	4,243	19,483,060	5,323,715	24,806,775		26,493,728	4,119,440	195,652	11,277,554	606,912	21,731,318	82.02	4,762,410	1,557,604	3,204,806	2,258,323
Mineral Range.....	101	491,443	3,299	494,742		517,655	94,423	3,467	291,711	7,844	569,144	109.94	51,489	28,500	79,989	38,913
Minn. & Int.....	194	482,865	198,137	681,002		722,343	178,804	4,059	382,860	27,827	719,424	99.59	2,919	37,239	34,334	60,301
Miss. Cent.....	164	403,559	225,902	629,461		663,589	163,301	10,100	276,910	46,567	744,946	112.26	81,357	26,075	107,432	314,799
Mo. & N. Ark.....	365	603,390	321,315	924,705		985,190	506,199	13,575	504,386	71,263	1,396,644	141.76	111,453	50,869	162,322	511,807
Mo., Kans. & Texas.....	1,714	15,372,797	5,270,007	20,642,804		21,801,549	4,024,329	214,775	7,567,488	618,121	18,662,941	85.60	3,138,608	721,387	2,417,221	732,849
Mo., Kans. & Texas of Texas.....	1,796	9,543,851	5,053,870	14,597,721		15,688,183	3,2,									



## REVENUES AND EXPENSES OF RAILWAYS

EIGHT MONTHS OF CALENDAR YEAR 1919—Continued

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) comp. with last year.
		Freight.	Passenger.	Total (Inc. misc.).	Way and structures.	Maintenance of equipment.	Trans. potation.					
Norfolk Southern	906	\$2,656,917	\$1,188,120	\$4,096,919	\$866,319	\$787,224	\$61,144	\$2,150,088	\$166,600	\$4,035,137	\$86,290	\$304,115
Norfolk Southern	112	601,940	106,586	732,996	157,507	473,782	10,373	243,213	14,739	699,470	6,027	—194,850
Norfolk Southern	6,577	45,178,418	13,081,792	62,803,514	11,321,616	10,549,540	491,546	24,128,473	48,601,349	47,999,396	9,391,816	—2,165,072
Norfolk Southern	526	2,111,465	1,637,750	4,160,656	794,220	3,307,245	42,137	1,808,004	99,903	3,307,245	669,268	—433,202
Oahn Ry. & Land Co.	114	887,125	209,131	1,177,733	144,115	125,769	6,625	358,046	43,572	676,569	421,164	—15,851
Oregon Short Line	2,347	17,665,939	4,604,623	23,815,264	4,368,014	3,988,789	131,915	7,150,507	707,576	16,816,448	5,687,752	—880,224
Oregon Short Line	2,070	12,952,671	3,322,681	17,279,768	3,322,681	1,714,015	224,056	7,184,721	707,576	14,412,493	2,664,421	—771,571
Panhandle & Santa Fe	712	2,826,631	748,114	3,749,806	802,906	1,278,593	30,976	1,794,138	118,513	4,012,493	401,964	—96,379
Penn. East.	5,367	156,065,400	69,435,792	245,947,509	35,620,088	68,120,936	2,080,034	29,672,971	5,827,512	223,740,566	14,953,634	—710,666
Penn. East.	1,754	48,835,306	13,896,296	68,182,033	9,641,799	17,897,607	580,972	10,364,123	1,484,331	59,463,811	2,469,972	3,538,659
Peoria & Pekin Union	19	228,025	29,814	767,518	137,608	289,915	6,556	602,911	42,393	1,079,384	387,867	—239,191
Pere Marquette	2,232	16,445,493	3,969,886	22,094,391	2,484,042	4,278,312	2,227,131	9,152,458	571,631	16,732,267	4,874,959	2,736,401
Perkinston	41	620,159	66,398	712,464	49,680	34,734	178	288,663	2,418	368,839	329,225	97,461
Phila. & Reading	1,127	37,167,399	7,035,952	46,225,511	4,964,016	12,119,951	295,605	23,084,665	1,067,887	41,666,704	4,112,889	—5,196,059
Phila., Beth. & N. E.	71	.....	.....	540,614	62,463	98,894	2,663	340,929	8,646	513,594	16,487	—127,608
Pitts. & L. E.	224	15,409,617	1,717,884	18,612,933	3,313,991	5,351,711	115,873	6,575,427	350,166	15,717,400	2,294,799	—3,707,044
Pitts. & Shaw	103	702,227	32,218	734,445	265,512	315,425	12,842	281,746	24,450	899,975	7,782	—161,767
Pitts. & W. Va.	63	693,317	78,144	877,150	445,234	318,968	10,554	423,565	44,058	1,304,404	91,503	—518,888
Pitts., Shaw. & Nor.	204	641,091	47,780	712,780	194,484	377,671	7,772	297,815	60,475	938,247	14,732	—240,218
Pitts., Chic. & St. L.	2,383	39,639,381	14,517,929	59,909,972	7,829,174	17,950,174	691,267	26,910,382	1,384,139	55,324,762	1,912,380	—1,851,533
Port Reading	21	1,050,020	1,684,180	2,734,200	139,068	111,832	818,191	1,077,032	7,795	1,077,032	535,147	182,388
Quincy, Omaha & K. C.	255	1,460,994	204,643	1,665,637	111,731	124,886	1,787	1,542,856	10,996	1,778,211	24,331	—8,561
Rich. Fred. & Pot.	481	2,591,596	2,312,673	5,328,661	440,251	483,560	34,173	1,758,902	104,897	3,051,151	217,634	520,751
Rutland	415	1,647,920	885,717	3,075,893	520,954	983,360	51,895	1,462,866	90,557	2,898,193	152,755	41,271
St. Joseph & G. I.	238	1,452,565	343,941	1,898,255	381,583	278,162	15,042	1,066,169	93,250	1,811,893	9,702	—31,211
St. Louis, Brownsville & Mex.	548	2,228,505	1,035,504	3,456,272	602,391	572,605	42,562	1,021,759	125,682	2,365,000	1,010,800	350,339
St. Louis Mech. Bridge Term.	9	.....	4,832	1,850,626	446,556	326,981	5,930	2,228,772	48,303	2,228,772	442,154	—2,852,287
St. Louis-San Fran.	4,761	32,350,082	14,415,146	49,248,660	7,834,374	9,711,856	417,423	19,012,521	1,420,994	38,320,012	1,852,808	9,057,964
St. Louis-San Fran. & Texas.	134	818,566	131,681	1,009,709	169,415	1,615,246	13,284	524,405	49,111	917,841	12,270	79,418
St. Louis S. W.	939	6,635,336	1,412,560	8,379,989	1,402,219	1,886,098	134,898	2,666,205	313,600	6,451,745	1,583,334	—1,211,995
St. Louis S. W. of Texas.	814	2,916,610	979,993	4,151,858	1,066,341	1,433,077	63,814	2,174,766	187,066	4,916,024	168,000	—935,490
St. Louis Transfer	6	.....	799,993	679,860	93,880	94,409	1,540	329,679	17,746	537,255	930	141,675
San Ant. & Aransas.	736	1,809,410	769,588	2,753,183	700,992	839,913	48,746	1,549,689	135,221	3,361,615	122,009	—332,079
Seaboard Air Line.	3,563	16,044,692	8,753,825	27,137,718	4,022,787	5,651,862	487,716	12,926,049	865,055	24,167,318	1,080,000	—1,071,980
South Buffalo	11	292,145	.....	720,938	39,278	127,271	2,740	430,893	14,310	614,492	29,333	—156,554
Southern R. R.	6,982	50,916,684	25,062,056	82,108,698	15,208,824	17,492,945	972,943	35,931,912	2,116,631	72,324,881	2,595,607	7,141,232
Southern R. R. in Miss.	2,278	6,449,512	3,777,063	10,116,575	2,028,772	1,548,921	18,032	6,177,008	33,056	11,157,786	1,919	—3,893,473
Southern Pacific	7,049	69,915,893	27,515,373	105,165,843	17,528,781	20,858,711	901,950	40,544,671	1,882,671	83,835,671	79,700	21,340,172
Southern Pac. S. S. Lines.	.....	6,146,446	3,725,569	6,870,343	75,293	1,810,113	97,703	5,148,994	199,158	7,312,160	83,609	—545,433
Spokane Int.	156	534,611	130,298	685,441	138,610	62,592	13,372	234,494	34,979	482,224	36,018	—30,837
Spokane, Portland & Seattle.	554	3,197,631	1,202,962	4,730,458	792,308	671,520	43,880	1,607,165	156,039	3,290,788	985,758	—848,267
Staten Island Rapid Transit.	23	683,602	645,330	1,522,748	202,291	202,291	7,796	793,678	71,928	1,279,525	139,178	74,893
Tennessee Cent.	293	1,191,167	383,006	1,666,089	613,781	404,687	22,667	801,064	52,592	1,893,983	41,080	—269,170
Term. R. R. Assn. of St. L.	37	702,866	136,705	924,634	589,230	442,319	6,323	1,107,405	45,008	2,218,050	213,955	9,872
Texarkana & Ft. Smith.	86	.....	.....	1,065,778	153,070	157,713	8,214	424,570	25,707	764,051	107,531	—64,571
Texas & New Orleans.	469	3,411,678	1,322,980	5,192,576	943,131	1,377,569	38,248	1,880,205	114,685	4,571,069	446,946	—889,750
Texas & Pac.	1,946	15,149,517	6,284,254	22,550,769	3,194,002	4,700,817	202,220	10,344,931	573,311	19,190,044	2,647,852	79,848
Tol. & Ohio Central.	435	5,026,153	522,471	5,858,279	1,007,498	1,774,918	50,998	2,485,494	134,138	5,473,376	257,349	—414,977
Tol., St. Louis & West.	454	4,396,355	338,989	4,968,713	912,933	1,052,607	43,632	2,120,508	93,782	4,223,850	208,000	—516,502
Tol., Peoria & West.	247	624,721	387,983	1,065,778	216,626	307,806	16,996	553,339	44,242	1,136,567	106,680	—66,564
Trinity & Brazos Valley.	368	607,043	163,516	809,655	312,669	351,063	14,203	480,599	58,726	1,217,260	453,331	—194,470
Utah & Delaware.	128	426,622	161,692	735,011	130,391	150,445	11,069	528,181	37,210	851,207	118,450	—124,580
Union Pac.	3,614	49,671,909	14,525,788	69,293,410	9,943,722	12,645,870	365,514	19,904,026	1,854,708	46,318,221	1,906,626	923,634
Union R. R.	40	.....	.....	5,185,513	613,690	1,457,706	2,077	2,777,809	60,142	4,910,369	57,996	217,149
Utah Ry.	98	713,823	4,437	725,758	96,577	165,607	1,711	149,952	16,304	429,952	29,619	—182,937
Vicks., Shreveport & Pac.	171	1,341,151	617,231	2,111,740	361,288	464,154	27,094	785,147	70,378	1,726,835	86,636	297,976
Virginian Ry.	522	1,179,694	465,355	7,348,173	1,214,647	1,673,924	38,363	2,734,003	131,632	5,787,145	1,271,259	—453,506
Wabash	2,503	21,468,527	6,641,933	30,092,926	4,808,560	5,655,849	428,367	15,827,521	908,562	27,807,505	1,416,668	—2,550,738
Wash. Southern	35	1,061,696	1,625,444	3,191,416	274,292	318,174	19,794	950,389	42,365	1,640,953	52,362	502,263
West Jersey & Seashore.	361	2,303,300	5,414,346	8,249,266	1,589,367	1,521,025	65,079	3,860,118	169,312	7,246,667	372,374	—22,728
West. Md.	702	7,844,103	9,346,881	17,175,387	1,747,466	3,035,957	139,367	3,764,294	351,746	9,131,802	345,600	—17,562
Western Pacific	1,041	6,444,380	1,180,846	7,932,229	1,899,853	1,511,902	93,872	2,540,006	195,042	6,335,062	370,722	—8,784
Western R. R. of Ala.	133	908,969	664,671	1,690,738	209,327	336,859	24,212	638,331	50,565	1,287,099	60,000	343,687
Wheeling & L. E. W.	511	7,040,283	434,412	8,280,919	1,683,928	1,864,137	47,268	3,288,906	203,581	7,108,817	445,225	—293,105
Wichita Falls & N. W.	328	959,401	318,856	1,340,399	389,859	195,700	9,668	728,036	54,426	1,377,688	75,452	—113,243
Yazoo & Miss.	1,381	11,460,945	3,426,499	15,538,631	2,534,772	3,325,850	124,411	5,602,038	386,106	12,009,353	475,068	302,744

## Traffic News

Oscar F. Bell, traffic manager of the Crane Company, Chicago, has retired and J. A. Brough, assistant traffic manager, has been promoted to that position.

D. M. Denison, general freight agent of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., has been elected a member of the St. Paul (Minn.) District Freight Traffic Committee.

The Canadian Pacific now runs its passenger trains to and from the Central Station at Ottawa, Ont., the Broad street station having been abandoned for passenger service. The Central Station now accommodates 36 trains a day.

The Duluth, Missabe & Northern moved 16,821,209 gross tons of iron ore for the season just closed as compared with 20,567,288 gross tons during the preceding season. The decrease in tonnage has been attributed to labor troubles.

O. M. Odell, formerly in the freight traffic department of the Missouri Pacific, at Joplin, Mo., has been appointed traffic manager of the Dahlstrom Metallic Door Company, Jamestown, N. Y., succeeding J. H. Dasher, who has resigned.

H. M. Remington has been appointed assistant manager of the traffic bureau of the San Francisco Chamber of Commerce, succeeding John S. Willis, resigned. Mr. Remington has had long experience with the Michigan Central Railroad and the Interstate Commerce Commission.

Director General Hines announced on January 7 that the Central Coal Committee during the preceding 10 days had been permitting the overseas export of bituminous coal upon specific authorization in each case up to about 50 per cent of normal. It was expected that within a few days the aggregate export tonnage could be increased, but recent developments indicate that not only will this be impossible for several weeks, but it may become necessary to again curtail the overseas tonnage. The committee does not desire to again go into widespread distribution of coal but will not refrain from taking charge of distribution in individual cases, under the authority of the priority list, if this becomes necessary.

The Chamber of Commerce of the State of New York, at a meeting in New York City on January 8, adopted a resolution, to be sent to Washington, protesting against the recent reductions in freight rates from Ohio and other central territory to South Atlantic and Gulf ports; reductions made with a view to favoring the movement of export freight over those routes. The Chamber declares: That the central territory referred to is naturally tributary to north Atlantic ports and that there is no legitimate reason for making low rates to the south at the present time; that if reasonable notice had been given a protest would have been made before the new tariffs were put into effect; that this arbitrary effort to divert the traffic from its natural channels is economically unsound; that there is no congestion at northern ports warranting this action if the lines are permitted to use their facilities to the best advantage; that the situation will be greatly improved with the return of the railroads to private ownership; and that the Shipping Board has been allocating steamships to southern ports unreasonably. From Youngstown, Ohio, to New York the distance is 494 miles; to New Orleans 1,131 miles; yet the rate has been made the same to both places. On iron and steel articles, the rate, 32 cents per 100 lb., is the same to New Orleans, in disregard of the long-and-short-haul rule. Shipments to New Orleans go through Cincinnati, whence the rate is 39 cents to New Orleans and the same to New York. A similar comparison is made in connection with rates from Cleveland, Ohio, to Jacksonville, Fla. The southbound railroads have to carry freight 1,400 miles at the usual charge for 400 miles; and, it is claimed, most of the cars have to be returned north empty.

## Commission and Court News

### Interstate Commerce Commission

#### Time-Limit for Filing Freight Claims Unreasonable

The commission declares unreasonable the recent practice of some roads in refusing to settle freight claims more than two years and one day old (and the practice of all federal roads since last July, when the Railroad Administration directed the roads to defer such payments for a time, in order to insure uniform practice) and decides that the bill-of-lading provision should be amended.

This two-year clause in the uniform bill-of-lading was made the subject of a complaint by the National Industrial Traffic League. By this clause, which is section 3, paragraph 3, suits for loss, damage or delay of freight, must be instituted within two years and one day. Many railroads construed this as forbidding the payment of valid claims for loss and damage after the expiration of the two years and one day. At the same time, other railroads were continuing to pay such claims, in accordance with the former general custom, construing the clause in question as prohibiting the bringing of suits, but not forbidding the voluntary payment of valid claims. The Merchants' Association of New York City, and many other organizations, intervened as parties to the complaint.

The decision was on the complaint of Jacob E. Decker & Sons, against the director general, the Minneapolis & St. Louis Railroad Company and others. The commission finds that reasonable and non-discriminatory and non-prejudicial provisions to be applied for the future would be substantially as follows:

"Suits for loss, damage or delay shall be instituted only within two years and one day after delivery of the property, or, in case of failure to make delivery, then within two years and one day after a reasonable time for delivery has elapsed; Provided, however, that where claims for loss, damage or delay have been duly filed with the carrier and such claims have not been definitely declined in writing by the carrier before the beginning of the last six months of the two-years-and-one-day period, then suit thereon may be filed within six months from the date the claims are definitely declined in writing by the carrier, but not after. Where claims for loss, damage or delay are not filed, or suits are not instituted thereon, in accordance with the foregoing provisions, the carrier will not be liable and such claims will not be paid."

The defendants will be expected to modify their bill-of-lading provisions within 60 days.

### Personnel of Commissions

Douglas Brookman has resigned as chief counsel for the Railroad Commission of California to begin private practice of law at San Francisco, Cal. He will be succeeded by Hugh T. Gordon, attorney for the Commission at Los Angeles, Cal. Mr. Brookman has been the legal adviser of the Commission for the last seven years.

### State Commissions

The Board of Railway Commissioners for Canada has ordered that the present freight tariffs of the railway companies subject to the jurisdiction of the board be continued in effect. The order continues indefinitely the 25 per cent increase in freight rates, made in August, 1918.

The Railroad Commission of California in its annual report for the year ending June 30, 1919, shows that in the 12 months covered by the report the commission held 612 public hearings and met 269 times at the offices of the commission in San Francisco. During this period 80 formal complaints and 803 formal applications were filed with the commission.



The number of decisions handed down was 943. During the same period the commission received 2,290 informal complaints and instituted 13 cases on its own initiative.

The Board of Railway Commissioners for Canada recently ordered that the demurrage tolls to be charged for delays to cars at Winnipeg, Man., because of the general strike in that district, be \$1 per car per day from the commencement of the strike to the fifth day after its termination. This compromise was offered by the railway companies, but the Winnipeg Board of Trade and other commercial organizations wanted more favorable terms and protested to the Board. The order sustaining the position of the railways was issued by the Board after extended hearings.

Because of the present car shortage which is said to be hampering many Oregon industries, and "throwing thousands of men out of employment," Fred E. Buchtel, chairman of the Public Service Commission of Oregon, has asked officers of the Railroad Administration for relief and has also addressed an appeal to Oregon senators and representatives. Commissioner Buchtel, in his communications, has not complained of the local distribution of cars in Oregon, but calls for drastic remedies to be applied at Missouri river points and east, so that freight and empty cars shall be expedited. The Public Service Commission of Oregon is at the same time urging the loading of cars to full capacity, prompt loading and unloading and other remedies to relieve the shortage.

## Court News

### Quarantine Regulations—Unloading for Inspection

The Iowa Supreme Court holds that the quarantine regulations requiring carriers to unload for inspection horses brought into Iowa from points west of the Missouri river, unless a certificate of health is attached to the way bill, do not require a railroad to unload a shipment of horses at the yards nearest the Missouri river, but only at the yards nearest the river on its own line.—*Marks v. Rock Island* (Iowa) 169 N. W. 764.

### Doing Business in State

The Georgia Supreme Court holds that a foreign railroad corporation, which neither owns, leases, nor operates any line of road within the State of Georgia, is not "doing business" within the State, in the sense that liability to service is incurred, because it maintains an office and employs an agent, resident in the State, for the merely incidental business of soliciting freight, especially where the cause of action did not grow out of, and had no connection with, business so initiated.—*V. S. & P. v. De Bow* (Ga.) 98 S. E. 381.

### Duty as to Sale of Perishable Goods

A terminal carrier received an interstate shipment of peaches in bad condition, and the consignee refused to accept it. The peaches had to be sold promptly. The Iowa Supreme Court holds that the sale did not amount to a conversion. The condition of the peaches was the result of insufficient refrigeration provided by the initial carrier. The connecting carrier was liable only for damages resulting from its own negligence, and not for that of the initial carrier.—*E. H. Emery & Co., v. Chicago, B. & Q.* (Iowa) 170 N. W. 540.

### Crossing Accidents

The California District Court of Appeal, Third District, holds that under a complaint for death at a crossing alleging that the engineer in charge of a locomotive negligently, without giving whistle or bell signal, ran the locomotive across the highway at a great rate of speed, while the crossing was concealed from view by buildings and box cars, no recovery could be had on the ground that the placing of the box cars and buildings was a negligent act; as this would not be of itself a negligent act as to persons traveling over the crossing.—*Fimple v. Southern Pacific* (Cal.), 177 Pac., 871.

## United States Supreme Court

### Electric Power to Interstate Trains as

#### Part of Interstate Commerce

A lineman in the employ of the Southern Pacific received an electric shock while wiping insulators, which caused him to fall from a steel power pole, producing injury which approximately caused his death. The California Supreme Court affirmed an award by the State Industrial Accident Commission under the Workmen's Compensation Act against the company, which took the case to the United States Supreme Court. At the time of the accident the company maintained a power house at Fruitvale, California, where it generated electric current which moved its cars engaged in both interstate and intrastate commerce. From the generators this current passed along main cables, through transforming station, to the trolley wires, and thence to the motors. When he received the shock, the deceased was engaged in work on one of the main lines.

The Supreme Court of the United States holds, (opinion of Mr. Justice McReynolds), that the work was part of interstate commerce, and the State Workmen's Compensation Act did not apply, therefore the judgment below must be reversed. Power is no less essential than tracks or bridges to the movement of cars. The accident occurred while the deceased was wiping insulators actually supporting a wire which then carried electric power so intimately connected with the propulsion of cars that if it had been short-circuited through his body, they would have stopped instantly. His work was therefore directly and immediately connected with interstate transportation and an essential part of it. Mr. Justice Clarke dissenting. *Southern Pacific vs. Industrial Accident Commission*. Decided January 5, 1920.

### Taxation of Main Tracks, Sidetracks and Buildings

To pay the cost of a district road improvement contemplated, an Arkansas act made it a charge upon all of the real property, railroads and tramroads in the district. The tax was imposed upon the assessed value of the main track, side tracks, rolling stock, buildings and material of the St. Louis, Iron Mountain & Southern apportioned to the road district under a state law for the valuation of railroad property. The rate was the same for all real property in the district. The company, in the District Court, obtained a decree permanently enjoining the tax to the extent that it was imposed on personal property—rolling stock and materials. From that part of the decree no appeal was made. But the District Court dismissed the railroad's bill so far as applicable to the real estate—the main track, side tracks and buildings. The Circuit Court of Appeals reversed this and enjoined the collection of the tax on the real estate on two grounds:

(1) Because the including of the franchise and other intangible property of the company resulted in a "higher rate of taxation" on the railroad's property than on the other property in the district, and

(2) Because the evidence failed to show that the company would derive any benefit from the improvement of the highway.

The Road-District took the case to the Supreme Court of the United States, and that court, on the first point, sustains the district, holding that the basis for assuming that the franchises of the railroad company were added as a separate personal property value to the assessment of the company's real property becomes, upon the record in the case, much too unsubstantial to justify invalidating the tax involved, if it were otherwise valid. The act creating the Road-District declares that all real property within the district, including railroads and tramroads, will be benefited by the building of the highway more than the cost thereof, as apportioned in the county assessment of each piece of property within the district. The Supreme Court has decided that such legislative determinations can be assailed under the Fourteenth Amendment only where the legislative action is "arbitrary, wholly unwarranted," "a flagrant abuse, and by reason of its arbitrary character a confiscation of particular property." (*Wagner v. Baltimore*, 239 U. S., 207, and *Houck v. Little River Drainage District*, 239 U. S., 254.) The railroad's receiver

called four witnesses, three of them engineers and one a superintendent of the company, who testified in general terms that the highway, a little less than  $3\frac{1}{2}$  miles long and the principal road to the village of Alma, was not and never would be of any benefit to the railroad. The Road-District called three residents of Alma, who testified that the road would increase the railroad's business and divert business from Van Buren, where there was a competing railroad. The court added the fact that anything that develops the territory which a railroad serves must necessarily be of benefit to it, and that no agency for such development equals that of good roads. The holding of the Circuit Court of Appeals that the railroad would not be benefited by the improvement was therefore not sustained and the decree of the District Court was affirmed.—*Branson v. Bush* (receiver St. L., I. M. & S.). Decided December 22, 1919.

### Compensation for Carrying Empty Mail Bags

In an action by the St. Louis, Iron Mountain & Southern against the United States it appeared that the railroad operated a line between Tower Grove, Mo., and Texarkana, Ark. So much of the line as lies between Poplar Bluff and Texarkana was aided in construction by a land grant by acts of 1853 and 1866, providing that government property and troops should be transported free of charge. Pursuant to the act of May 27, 1908, making appropriations for the Post Office Department, the Postmaster General withdrew from the mail mail bags despatched empty, and sent them by freight over the company's line, beginning July 1, 1910. The Postmaster General made deduction of this entire freight charge for all empty bags between Texarkana and Poplar Bluff from the railroad's bill, which called for payment for the empty bags at the full commercial rate. The Court of Claims decided against the railroad. 53 Ct. Cl., 45.

Two questions were presented: (1) Could the empty mail bags be lawfully withdrawn from the mails merely for the purpose of reducing the railroad's compensation for mail transportation service? and (2) Assuming that they were lawfully withdrawn and shipped by freight, were they "property" of the United States within the purview of the land grant acts of 1853 and 1866?

The Supreme Court of the United States (opinion by Mr. Justice Day), answers the first question in the affirmative. For the purpose of fixing compensation in the weighing of the mail, Congress, by the act of May 27, 1908, directed that the weight of the empty bags should be withheld in determining the average weight of the mails as the basis of fixing compensation, and this action of Congress violated no contractual or other right of the railroad. The second question was also answered in the affirmative, the empty bags, being property of the United States, must be carried free as per the land-grant provision. The court saw no reason why Congress might not regard empty mail bags, being returned for further use, as no longer a part of the mails. Under the land grant acts the railroad, in consideration of benefits received, was bound, when required, to transport troops and property of the United States free of charge. The empty mail bags were property and belonged to the United States.

Mr. Justice Reynolds dissented, on the ground that though the mail bags are property of the United States in a certain sense, whether full or empty, they are elements of the mail whether going out or coming back. He added: "A clear distinction between property of the United States and United States mail is preserved by the very language of the land grant statutes; and, I think, Congress had no purpose—if, indeed, the power—to convert mail into property within the meaning of these statutes simply by directing carriage of the former in freight trains. The purpose was to secure transportation at less than former cost, and to such end Congress, in effect, commanded that emptied bags, a portion of the mails for which rapid movement is not essential, 'shall be transmitted by either freight or express,' and compensation made according to the ordinary rates. Under this interpretation the railroad would suffer no oppressive burden and contemplated economies would be effectuated."—*St. Louis, Iron Mountain & Southern vs. United States*, decided January 3, 1920.

## Foreign Railway News

In answer to an inquiry in Parliament Sir Rhys Williams, parliamentary secretary to the Minister of Transport, stated recently that between November, 1918, and July, 1919, the number of persons employed on the railways increased from 500,000 to 600,000.

According to a statement in the English Parliament, the amount allowed in the estimated expenditure on the railways during the current financial year for the six shilling per ton increase in the price of coal was £3,000,000. This increase has since been removed and a further decrease of four shillings was made.

### Coal Shortage on Austrian Railways

The Austrian railways were forced to suspend passenger service during Christmas week on account of shortage of coal, all coal reserves being exhausted.

### The Simplon Express

As indicating the gradual resumption of international railway travel in Europe it is noted that on January 1, the Simplon express began to run as a through train, with dining and sleeping cars, from Paris to Bukarest and Belgrade.

### May Buy Austrian Railway System

Reports that American capital may be invested in railway properties of the former central empires again crop up in a report from Trieste to the effect that Austria is negotiating with a Franco-American syndicate for the sale of the Danubian fleet and the Austrian State Railways for 40 billion francs.

### Sardinian Railways Pass Over to the State

The chief normal gage railways on the island of Sardinia, which have hitherto been worked by a private company, were absorbed in the system of the Italian State Railways on January 1. The services will be thoroughly reorganized, rolling stock overhauled, and various other improvements effected.

### Swiss Railway Electrification

Progress in the electrification of the Swiss railways is reported by the fact that the middle of December was fixed for the opening of the Davos and the Filisur line for passenger traffic. It is hoped to have finished the electrification of the line between Davos and Klosters sometime during the coming year, and in 1921 between Klosters and Landquart and between Reichenau and Disentis.

### Receipts and Expenditure on Swiss Railways

LONDON.

An article abstracted from the Schweizer Export Review by the Technical Review states that in the first six months of this year the Swiss State Railways brought in 35½ million francs from increased tariffs. The average price of coal in 1918 was Fcs. 153 (\$30) per ton as against Fcs. 27 (\$5.40) before the war. For the year 1920 the expenditure upon maintenance and electrification is estimated at 125 million francs. The 8-hour working day increases the expenditure by several million francs, and it seems doubtful whether the goods traffic will reach pre-war figures. The estimate for 1920 is as follows: Receipts, 328 million francs; expenditure, 288 million francs. The net receipts therefor expected to be 40 million francs, which will not suffice to pay interest on debentures, and it is difficult to see how this deficit will be covered.

Among the various methods discussed for meeting the anti-



pated deficit, it has been considered that sufficient consideration has not been given to the serious effect of the enhanced cost of transport upon manufacturers competing for foreign trade.

### Central African Railways

Saaction of the Portuguese government has been obtained, according to British authority, for certain modifications of the original concession for the construction of the railway from Beira to the Zambesi river, connecting with the Nyasaland Railways, reported in the Foreign Railway News column of October 3, page 715. The line, of about 170 miles in length, will be constructed by an English company, whose debentures will be guaranteed by the British Nyasaland Protectorate. The link to be known as the Trans-Zambesi Railway, will connect the Nyasaland Railway with the South African and Rhodesian systems, so that it will be possible to travel by train from Cape Town via Salisbury and Beira to Blantyre.

### Railway Connection With Finland

According to a report from the British Minister at Stockholm, the railway line connecting the Swedish and Finnish railway systems at Haparanda and Tornea was recently opened. The interconnection of the Finnish and Swedish railway systems has been under consideration since the extension of the Swedish northern trunk line to the Tornea Valley, i.e., some time before the war. The importance of the junction of the two lines is diminished by the fact that the Swedish and Finnish gages are different, so that goods and passengers cannot be forwarded from Sweden to Finland by through trains. The new line, however, obviates the transshipment of goods by sea, as they have hitherto, as a rule, been sent across the Gulf of Bothnia.

### Electrification of Swedish Railways

An abstract from the Swedish Export by Engineering states that the Railway Council are now considering the electrification of the Stockholm-Gothenburg line; the proposal will probably be laid before the Riksdag next year. The grant required is estimated at about 60,000,000 kronen, not allowing for locomotives. It is estimated that this amount should be spread over three years.

The Railway Council has also proposed that the electrification of the Gellivara-Svarton railway already decided upon should be pushed on more rapidly.

### England's Railway Material Exports

LONDON, ENGLAND.

The returns of the Board of Trade state that the exports of railway material from Great Britain for the first ten months of 1919 were as follows:

	First ten months, 1919	First ten months, 1918
Locomotives .....	£1,120,025	£1,004,591
Rails .....	1,570,913	436,597
Passenger cars .....	395,420	346,361
Freight cars .....	1,483,917	270,859
Wheels and axles .....	594,533	303,255
Tires and axles .....	743,374	494,080
Chairs and metal sleepers .....	294,427	115,907
Miscellaneous permanent way .....	639,237	495,136

The weight of the rails exported during the first ten months of the present year was 97,752 tons as against 23,828 tons for the same period in 1918, and of chairs and metal sleepers 20,366 tons as against 7,327 tons during 1918.

### French Train Services Cut Down

The Paris correspondent of the Times, London, reported recently that the coal shortage has necessitated the cutting down of railway passenger traffic to a minimum on certain lines. The state line from Paris to Dieppe, had two day expresses, one each way, cut, leaving only two day expresses three times a week. On the Paris-Granville route two expresses were cancelled, and on the Paris-Brest route two expresses also. The railway authorities expect to save 50 tons of coal daily on the state system. On the Eastern Railway

one express each way between Paris and Basle and one express each way between Mulhouse and Basle are the chief modifications. Restrictions on other systems were being worked out, at the time the report was made.

### German Engine Works Busy

In an article on the transport and coal question in the Börsen Courier, quoted in the Railway Gazette (London), a leading German manufacturer of locomotives says:

"It might appear that the German locomotive industry is specially interested in receiving orders from the State Administration. The opposite is really the case. In the large locomotive works in Germany new locomotives are being built, mainly out of pre-war material, and production in the workshops has increased that it may be said to have reached the peace-time standard. The Hanoverian Maschinenfabrik, for instance, is at the present time building some 32 new locomotives monthly, with the employment of 5,000 permanent workers. Having regard to the present economic situation in Germany, the only strange fact about this is that these locomotives are all sold to foreign countries. The prices which foreign countries are offering for German locomotives are such as to enable the manufacturers to provide themselves with all kinds of material, not only machinery, oil, etc., but also coal either from Germany or abroad."

### Spacing Out the "Rush Hours"

The London Traffic Advisory Committee is considering a proposal for relieving traffic congestion during the rush hours. The suggestion is that government departments and other large employers of labor should mutually arrange their hours of opening and closing so as to space out the "rush hour" traffic over a larger period, both in the morning and evening. The principal insurance companies already release thousands of their clerks by 5:30 p. m., and it has now been suggested to the Advisory Committee that it may be found practicable to alter the standard hours of attendance at government offices from 10 a. m. to 5 p. m., to 9 a. m. to 4 p. m. if it be found feasible to devise some spacing-out scheme of the kind, the result should be an amelioration of the "rush hour" problem, which it is very difficult to obtain in any other way under existing conditions. The whole problem has become greatly accentuated this year by the general introduction of the shorter working day which, by enabling very large numbers of employed persons to start later and return earlier from their work, has still further increased the number of people traveling during the most congested hours. As in American cities, even under existing conditions, the accommodation provided on the London underground railways is so much in excess of requirements during the greater part of the day, that the actual seat-mileage would suffice for three times the number of passengers, without taking the strap-hanger into account.

### Railway Notes from South Africa

Johannesburg, November 10, 1919.

The outstanding feature to be recorded this month is a further increase in the tariffs for the conveyance of passengers, parcels, live-stock, goods and coal traffic and other miscellaneous services on the South African Railways as from November 4, 1919.

On passenger fares, season tickets excluded, a special levy of 10 per cent has been added to the already existent 10 per cent surcharge, thus making a total levy of 20 per cent on normal rates. As regards season tickets, the previous surcharge of 5 per cent has been increased to 10 per cent. Parcels and excess luggage traffic are now charged at a revised rate based on the 1918 scale plus 25 per cent (previous to the 4th November the existing scale was that of 1918, plus a 10 per cent levy).

The rates for live-stock traffic have now been increased from a surcharge of 10 per cent to 25 per cent. On goods traffic, including bunker coal and coal for local consumption conveyed distances over 500 miles, the previous surcharge of 10 per cent has been raised to 25 per cent. No alteration has,

however, been made in the railage charges on export cargo coal and coal for local consumption, conveyed distances not exceeding 500 miles. The previous surcharge of 10 per cent on all miscellaneous charges, such as for example cartage private sidings charges, storage and handling charges, has been increased from an existing 10 per cent to 25 per cent.

The financial year which started April last was commenced with a deficit of £950,000 odd on the previous year's working. Further, although the revenue derived since the inception of the new financial year up to the week ended November 1, 1919 exceeded the estimates by £59,549 and £1,044 in the administration of the railways' and harbors' affairs respectively, the excess of expenditure over receipts for the period April 1 to August 31, 1919, was £249,746, thus making the total debit balance up to that date £1,200,042.

The main causes of this serious position was the increased war bonuses, advances in wages to several grades of the staff, payment for Sunday duty to the salaried staff, the increased cost of living, the enhanced cost of materials and the operation of the eight-hour work day. The war bonuses alone amount to about 1½ millions sterling per annum, all of these factors entailing heavy additional expenditure. As regards the charges for the landing and shipping of cargoes at all Union Harbors it has been notified that where this work is done by the Administration an increase of 6d will be levied as from December 1 next on the existing rate per harbor ton.

#### Eight-Hour Work Day

The general application of the eight-hour day to the staff of the South African Railways and Harbors is proceeding as well as can possibly be expected. At the end of September last nearly 80 per cent of the total staff comprising some 39,000 Europeans graded in 200 odd complete ranks, besides a number of unallied ones, were working under the new system. A fairly large number of station officials, gatekeepers and pumpers and practically all the lightkeepers in the service of the Administration are still working the old hours. (The lighthouses of the Union are administered by the Railways and Harbors management.) The change in connection with these grades has made it necessary to engage and train a large number of learners and to provide accommodation and facilities for them. The biggest difficulty in making the change has arisen in connection with the running staff. As the outcome of a conference of the Running Staff held on September 17, and three consecutive dates, at which the general manager, besides a number of other prominent railway officials were also present, it was decided to apply the eight-hour day basis to the running staff as from September 25 last in connection with all the runs and services where the final eight-hour day working could be applied. As a result of this decision shunting, ballasting and banking, the working of breakdown trains, the majority of the suburban and railcar services and a considerable number of passenger and goods train and engine runs will be paid for on the eight-hour basis at once and further similar services will be paid for on the same footing as the necessary changes are made. It is anticipated that in most cases where the change over will not necessitate heavy new works, the actual eight-hour day working will be in operation by the end of the current year. It has been decided that all employees to whom the eight-hour working day will apply will be paid on the eight-hour day basis as from December 25 next. In addition to the very considerable improvement in the working condition of the Railways' and Harbors' staff, which the change is bringing about, the alteration in hours must have a considerable effect on the employment question in South Africa. As a result of it all servants of the department who have been on active service are being absorbed without displacing competent temporary assistants who were carrying out their duties during their absence, and in addition to these, more than 1,000 additional men, mostly returned soldiers have been engaged. A large programme of new works such as quarters, improved watering supplies, improvements to line such as doubling, tunnels, deviations, and reductions in grades, new crossing places, rest rooms, locomotive exchange depots, etc., will have to be carried out to meet the changed working conditions and many of these works have already been authorized and put in hand.

## Equipment and Supplies

### Locomotive Deliveries, Week Ending December 27

The Railroad Administration has issued the following statement of locomotives shipped during the week ended December 27:

Works	Road	Number	Type
American.....	{ T. & P.....	4	Santa Fe
	{ St. L. S. F.....	7	U. S. R. A. 6 W. Sw.
	{ T. & P.....	2	Pacific
		13	
Lima.....	P. M. ....	2	U. S. R. A. 8 W. Sw.
		2	
Baldwin.....	{ N. & W.....	2	Mallet
	{ M. V. ....	1	10 W. Sw.
		3	
Total.....		18	

### Cars Built in Railroad Shops in November

The Railroad Administration has issued the following statement of new cars constructed in railroad shops during the month ended November 30, 1919:

Class of cars	Steel	Steel under frame	Steel center sills	Wood	Total
Freight—					
Stock .....	..	3	..	3	6
Hopper .....	1	..	..	2	3
Gondola .....	..	..	..	..	..
Flat .....	..	2	..	1	3
Coke rack .....	..	..	..	..	..
Work car .....	..	1	1	1	3
Misc. freight cars.....	..	..	..	4	4
Caboose .....	..	..	..	3	3
Box .....	..	..	74	77	151
Refrigerator .....	..	..	..	..	..
Total freight.....	1	6	75	91	173
Grand total.....	1	6	75	91	173

### Cars Constructed in Railroad Shops

The Railroad Administration has compiled the following totals showing the passenger and freight cars built in railroad shops during the first eleven months of 1919, as compared with the totals for all of 1918. The totals given, with an estimate to cover December, were included in the totals given in the statistics for the year in the *Railway Age* January 2:

#### FREIGHT CARS—CARS CONSTRUCTED IN RAILROAD SHOPS.

Type	Number		Total
	Year, 1918	11 Months 1919	
Passenger—			
Dining .....	4	....	4
Dining observation.....	2	....	2
Passenger coach .....	1	2	3
Passenger baggage .....	10	....	10
Passenger and mail.....	4	....	4
Baggage .....	51	4	55
Express .....	24	....	24
Milk .....	5	....	5
Total passenger train cars.....	101	6	107
Freight—			
Stock .....	1,099	405	1,504
Hopper .....	857	341	1,198
Gondola .....	1,726	75	1,801
Flat .....	304	128	432
Coke rack .....	20	13	33
Work car .....	85	96	181
Miscellaneous freight .....	....	36	36
Caboose .....	613	351	964
Box .....	3,834	2,839	6,673
Refrigerator .....	125	10	135
Total freight train and work equipment cars .....	8,663	4,294	12,957
Total cars constructed in R.R. shops .....	8,764	4,300	13,064



### Locomotives Constructed in Railroad Shops

The Railroad Administration has compiled the following table showing the locomotives built in railroad shops in 1919. The totals given, with an estimate for December, was included in the annual production figures given in the statistics of 1919 in the *Railway Age* of January 2:

Type	Constructed in R.R. shops		
	Year, 1918	11 Months 1919	Total
Mikado .....	68	7	75
Mountain .....	...	...	...
Pacific .....	123	12	135
Santa Fe .....	...	...	...
Mallet .....	2	2	4
Mohawk .....	...	...	...
Consolidation .....	10	6	16
10 W. Sw. ....	3	10	13
8 W. Sw. ....	10	...	10
6 W. Sw. ....	8	...	8
Decapod .....	40	82	122
Mogul .....	4	...	4
Total .....	268	119	387

### Locomotives

THE BOSTON & MAINE is inquiring for 20 Santa Fe type locomotives.

THE MISSOURI, KANSAS & TEXAS is inquiring for 10 Pacific, 20 Mikado and 10 eight-wheel locomotives.

A. M. PUNTE & Co., Havana, Cuba, have ordered two plantation locomotives from the Bell Locomotive Works, Inc.

THE VOTEY ORGAN COMPANY, Garwood, N. J., has ordered one storage battery switching locomotive from the Bell Locomotive Works.

THE WEST CONSTRUCTION COMPANY, Knoxville, Tenn., has ordered two contractors' locomotives from the Bell Locomotive Works, Inc.

THE DIAMOND MATCH COMPANY has ordered one switching locomotive from the Bell Locomotive Works, Inc., for its Spokane, Wash., plant.

THE STEVENSVILLE-DESDEMONA OIL RAILWAY OF TEXAS has bought six freight and two passenger locomotives from the Bell Locomotive Works, Inc.

THE UNION PACIFIC is in the market for 100 locomotives, including 19 2-8-8-0 Mallet type, 25 Santa Fe type, 16 Mikados, 10 Pacifics, 30 six-wheel switchers.

THE CENTRALE SANTA DOMINICAS RAILROAD, San Domingo, West Indies, has ordered three general utility locomotives from the Bell Locomotive Works, Inc.

MITSUI & Co., New York, have ordered 4, eight-coupled tank locomotives from the American Locomotive Company, for the Taiwan Electric Power Company.

### Freight Cars

THE UNION PACIFIC is in the market for 45 caboose cars.

THE INLAND STEEL COMPANY, Chicago, is inquiring for 60 cars.

THE DAVIDSON CHEMICAL COMPANY, Baltimore, Md., is in the market for 20 50-ton ore cars.

THE AMERICAN STEEL COMPANY of Cuba is inquiring for 15 steel underframe, steel superstructure cars, 36 ft. long.

THE BELGIAN STATE RAILWAYS have revived an inquiry for from 2,000 to 10,000 gondola cars of 20-ton capacity.

THE AMERICAN SMELTING & REFINING COMPANY is inquiring for from 10 to 16 50-ton general service gondola cars, and 50 50-ton box cars.

MITSUI & Co., New York, have ordered from the American Car & Foundry Company, car material consisting of all metal

parts, except the couplers, draft gears, spring and air brakes, for 300 30-ton capacity wood underframe box cars.

SOPHUS BERENDSEN, 15 Broad street, New York, is in the market for 200 tank car bodies with glazed lining, to be used for transporting wine.

THE UNITED RAILWAYS OF HAVANA have ordered 300 30-ton box cars and 300 25-ton flat cars from the American Car & Foundry Company. These cars will have steel underframes.

### Passenger Cars

THE BOSTON & ALBANY is inquiring for 30 passenger cars.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 35 suburban coaches.

THE CENTRAL OF NEW JERSEY is inquiring for from 25 to 50 passenger coaches.

THE ERIE RAILROAD is inquiring for 30 60-ft. passenger cars, six passenger and baggage cars and four baggage cars.

THE UNION PACIFIC is inquiring for 40 70-ft. chair cars and 25 baggage cars and has placed orders with the Pullman company for 7 dining cars, 5 of which are to be assigned to the Los Angeles & Salt Lake and 2 to the Oregon Short Line.

### Iron and Steel

THE WHEELING & LAKE ERIE has placed orders for 4,000 tons of rails with the Carnegie Steel Company, Pittsburgh, Pa., on the basis of \$55 for Bessemer and \$57 for open hearth at the mill.

MANNING, MAXWELL & MOORE, INC., New York City, have ordered 875 tons of structural steel from the McClintic Marshall Construction Company, Pittsburgh, Pa., for the construction of a foundry plant at Muskegon Heights, Mich.

MITSUI & Co., New York, are in the market for about 100 steel transmission towers calling for 6,000 tons of steel for one of the Japanese hydraulic electric companies, and are also inquiring for 3,000 tons of rails and accessories for use on the Siamese State Railways.

### Miscellaneous

THE ANN ARBOR has ordered 5,000 tons of rails from the Lackawanna Steel Company, Lackawanna, N. Y.

SPECIAL REFRIGERATOR CARS have had to be provided on the Northern Pacific for the extraordinary number of carcasses of slaughtered elk shipped from Gardiner, Mont., recently, and also at Livingston, Mont. The early commencement of winter drove the animals down to Yellowstone Park during the open hunting season, resulting in the killing of over 3,000 animals. At the height of the season from 100 to 170 carcasses were shipped daily from Gardiner.

NEWS FROM VALDOSTA.—The Georgia & Florida and the Valdosta, Moultrie & Western railroads have adjusted their differences and the crossing of their tracks within the city limits of Valdosta has been laid. The V., M. & W. is now rapidly building its tracks toward Toombs street terminal; within ten days the physical connection with the Georgia Southern & Florida road will be severed, and the V., M. & W. will commence using its own terminal, which is near the business center of the city. The V., M. & W. will commence then the erection of its shops on its terminal property, to build its cars and other equipment. The first work will be the construction of two motor cars, which will be placed in the passenger service between Valdosta and Moultrie and by which passengers can go to Albany in less than half the time now required. The company will also manufacture three motor cars for the trade and is now in possession of several orders for such cars from other roads.—Savannah (Ga.) News.

## Supply Trade News

**H. H. Hendricks**, formerly connected with the Ryan Car Company, Chicago, has been appointed a salesman for **The Camel Company**, Chicago.

The **Railway Motor Car Company**, Hammond, Ind., contemplates the erection of a power plant and machine shop at its plant to cost approximately \$200,000.

**C. H. Beck**, special representative of the Safety Car Devices Company at Pittsburgh, Pa., succeeds **C. R. Ellicott** as assistant eastern manager at New York.

**John W. Fogg**, sales representative of the **Boss Nut Company**, Chicago, with office at that city, has been promoted to railroad sales manager, with the same headquarters.

The **Wm. Graver Tank Works**, Chicago, announces that it has changed its name to the **Graver Corporation**. There is no change in the management, ownership or directorate.

**A. L. Stephenson**, credit manager of the **National Malleable Castings Company**, Cleveland, Ohio, has been appointed local treasurer for the company at its Indianapolis (Ind.) branch, a newly created position.

**C. R. Ellicott**, assistant eastern manager at New York of the **Westinghouse Air Brake Company**, Pittsburgh, Pa., has been promoted to eastern manager, with headquarters at New York, vice **Joseph R. Ellicott**, retired.

**Fred C. Dunham**, formerly assistant to the president of the National Railway Appliance Company, has been elected vice-president of the **Hutchins Car Roofing Company**, Detroit, Mich. Mr. Dunham's headquarters are 103 Park avenue, New York City.

**A. P. Van Schaick**, special representative at Chicago of the **American Chain Company, Inc.**, Bridgeport, Conn., has been appointed assistant general sales manager of the company, with headquarters at the Grand Central Terminal, New York City, effective January 5.

**Charles Nourse**, until recently in charge of the engineering department of the **Heald Machine Company**, Worcester, Mass., has severed his relations with that company to accept a position with the **Lombard Machine Company**, Worcester. **Victor Bergstrom** succeeds him.

On December 31, 1919, the business of manufacturing and selling **Delco-Light** products heretofore conducted by the **Domestic Engineering Company**, Dayton, Ohio, was transferred to the **General Motors Corporation**. The business will be operated until further notice by the **Delco-Light Company**.

**C. C. Humberstone** has been appointed Chicago sales manager of the **Anchor Packing Company**, Philadelphia, Pa., under the jurisdiction of **J. T. Landreth**, western sales manager with headquarters at Chicago. Mr. Humberstone was formerly connected with the engineering department of the Pennsylvania.

**J. P. Bourke**, who during the war, with the rank of major, was assistant to the quartermaster general and later assistant chief of staff to Major-General Omar Bundy, has returned to the service of the **Ewald Iron Company**, Louisville, Ky., as resident manager in charge of eastern territory, with office at New York.

**J. C. McCune**, special engineer at Wilmerding, Pa., has been appointed assistant to district engineer eastern district, with headquarters at New York, and **J. H. Woods**, of the commercial-engineering department at Wilmerding, Pa., has

been appointed engineer of the export department, with headquarters at Pittsburgh.

**Henry P. Thompson**, a district representative at Cincinnati, Ohio, of the **American Steam Conveyor Corporation**, Chicago, has added to his sales engineering staff **Albert A. Casey**, who will push the sale of the American steam jet conveyor in that territory. Mr. Casey is a mechanical engineer, and a graduate of the Ohio State University.

The **Vanadium Corporation of America**, 120 Broadway, New York, has bought all of the properties, excepting cash, receivables and securities, of **Primos Chemical Company**, the **Primos Exploration Company**, and the **Primos Mining & Milling Company**, producers of vanadium, molybdenum, tungsten and other steel alloys, and having valuable deposits of these elements in Colorado, and a large refining plant at Primos, Delaware county, near Philadelphia, Pa.

**Joseph Robinson**, the inventor of the Robinson connector and formerly president of the **Robinson Connector Company**, has again become associated with the company. This follows



J. Robinson

an absence from the company of two years during which time Mr. Robinson has had no managerial or mechanical association with it. In his new association he will act in an advisory capacity, working in co-operation with **A. R. Whaley**, vice-president of the company and formerly vice-president of the New York, New Haven & Hartford Railroad. Mr. Robinson was born in Dayton, Wash., on July 21, 1889. His family later went east to Illinois where, after leaving school at the age of 12, he worked on a farm until he was 14. He

then went west again and worked in a blacksmith shop until the age of 18 when he opened an office at Salem, Ore., as a designer of special machinery. While doing this work his attention was drawn to the need of a better means of coupling hose on railway trains. He worked out the design of the Robinson connector for this purpose and after a study of the problem he came east with the device in 1909 and in 1910 organized the Robinson Connector Company of which he became president. For the next eight years he devoted his efforts to the development of the business represented by the company, until 1918, when he turned his interest over to other hands who, since that time, have endeavored to develop the device. Mr. Robinson retaining only the ownership of the patents, but no other connection than lessor with the company until his return to it as noted above.

The Cleveland office of **B. M. Jones & Co., Inc.**, New York, selling agents for **Mushet steels** and **Taylor iron**, has been moved from 824 Engineers building to 115 St. Clair avenue, N. W., where the office and warehouse have been combined. **Walter E. Sargent**, formerly of Detroit, Mich., is now connected with the New York sales office of the company at 192 Chambers street.

The **Fairbanks Company**, Chicago, has purchased practically the entire capital stock of the **H. Channon Company**, Chicago, and will enlarge the business of the latter company to include several new lines. The Channon Company started as a ship chandlery, but since the decline of shipping on the Great Lakes, has been engaged in the manufacture of contractors' supplies, tents, and miscellaneous articles. A new organization has been formed with **H. G. Elfborg**, formerly with the Ajax Forge Company, Chicago, as president, **Benjamin Berntsen** and **C. C. Viehoff**, vice-presidents and **John H. Hanley**, secretary.



### Bush, Roberts & Schaefer Company

A new corporation, the Bush, Roberts & Schaefer Company, with offices in Chicago and New York, has been formed for the purpose of acting as engineers and contractors for general railroad construction work such as terminal facilities, reinforced concrete and steel bridges, viaducts and track elevation work.

The corporation was formed by Colonel Lincoln Bush, formerly chief engineer of the Delaware, Lackawanna & Western and more recently a consulting engineer with headquarters in New York City, together with the officers and directors of the Roberts & Schaefer Company, Chicago. However, the new company is not a subsidiary of the Roberts & Schaefer Company. The latter company will continue independently its operations, which have extended over a period of 16 years, in the building of locomotive coaling stations, cinder handling plants, material transfer plants and other storage and handling installations, whereas the new

ant engineer with E. L. Corthell in bridge work at Chicago, Ill. From December, 1891, to May, 1896, he was chief draftsman, designer and estimator in the western office of the Pittsburgh Bridge Company and from May to December of the latter year was draftsman in the bridge department of the Chicago Drainage Canal. In December, 1896, he returned to railway service as assistant to the bridge engineer of the Chicago & North Western, with offices in Chicago. In January, 1899, he was appointed acting division engineer of the Iowa division of the same road, with headquarters at Boone, Iowa, and in December of the same year was appointed bridge engineer of the Delaware, Lackawanna & Western, with headquarters at Hoboken, N. J. In October, 1900, he was appointed principal assistant engineer of the same road and in February, 1903, chief engineer. In the latter capacity he discovered the sand jack for lowering great weights, such as the 1,000-ton double deck draw bridge at Newark, N. J., and in addition invented the Bush type of train shed and the Bush type of track construction. On January 1, 1909, he



Col. Lincoln Bush



Col. W. R. Roberts



E. E. Barnett



J. J. Roberts



F. E. Mueller



C. P. Ross

company will confine its operations to general railroad construction work. It is proposed also that the new company will undertake contracts for government, state, county or municipal work.

Colonel Bush, who becomes president of the Bush, Roberts & Schaefer Company, graduated from the University of Illinois in 1888. For notable engineering work the latter institution in 1904 conferred upon him the degree of Doctor of Engineering. He entered railway service in May, 1888, as assistant engineer maintenance of way, of the Wyoming division of the Union Pacific with headquarters at Cheyenne, Wyo. In July, 1889, he was appointed assistant engineer on location of the Pacific Short Line, with headquarters at Ogden, Utah, and continued in this position until January, 1890, when he became assistant instructor in descriptive geometry at the University of Illinois. In April, 1890, he became assist-

engaged in private practice as a consulting engineer and contractor with headquarters in New York City. In this work he was engineer or consultant on the design and construction of 13 Bush train sheds and acted in an advisory capacity in several large railway construction projects in Pennsylvania. At this time Colonel Bush was also president and chief engineer of the Talbot Construction Company, vice-president and chief engineer of F. M. Talbot Company, and vice-president, treasurer and chief engineer of Flickwir & Bush, Inc. In October, 1917, Colonel Bush entered the service of the war department as a civilian and reached the grade of colonel in the Quartermasters Corps of the United States Army on August 24, 1918. He was honorably discharged on March 31, 1919, since which time he has been engaged in private practice as a consulting engineer, with headquarters at 1 Madison avenue, New York City.

The present directors of Roberts & Schaefer Company, together with Colonel Bush, will be the officers and directors of the new company. Col. W. R. Roberts, president of Roberts & Schaefer, becomes chairman of the board of Bush, Roberts & Schaefer Company.

Colonel Warren R. Roberts, president of Roberts & Schaefer Company, will hold the position of chairman of the board of directors of the new company, Edward E. Barrett, vice-president of Roberts & Schaefer Company, will be vice-president of the new organization, John J. Roberts, treasurer of Roberts & Schaefer Company, will be treasurer, and Frank E. Mueller, secretary and chief engineer of Roberts & Schaefer Company, will be secretary. The above, with Colonel Bush and Clyde P. Ross, contracting manager of Roberts & Schaefer Company, will constitute the board of directors of the new company.

Colonel Warren R. Roberts, president of the new organization, was graduated from the University of Illinois in 1888 and immediately entered the service of the Lassing Bridge Works, Chicago. He was later promoted to the position of chief draftsman of this company. During the years intervening between this period and 1894 he occupied different engineering positions in the city of Chicago. In 1894, he became assistant to the bridge engineer of the city of Chicago. In 1896 he was one of the incorporators of the H. M. R. Construction Company, Chicago, and in 1897 he entered construction work with two of his brothers. In 1904 Colonel Roberts, with J. V. Schaefer, John J. Roberts and Frank E. Mueller, formed a co-partnership known as Roberts, Schaefer & Company, to pursue the work of engineering and contracting in a specialty line of top works for coal mines. In September of the same year the corporation of Roberts & Schaefer Company was formed and Colonel Roberts was appointed president. In 1917 he entered the service of the War Department in the Construction Division of the United States Army as a major and in the spring of 1918 was promoted to lieutenant-colonel. Soon after he was promoted to the rank of colonel. Since his discharge from the army, Colonel Roberts has returned to his duties as president of the Roberts & Schaefer Company.

Edward E. Barrett, vice-president of the Roberts & Schaefer Company and also vice-president of the new Bush, Roberts & Schaefer Company, was graduated from the University of Illinois in 1893 and for eight years after his graduation was in charge of hydrographic surveys and the construction of dams and levies on the Mississippi river under the direction of the United States Engineering Corps. During the year 1900, Mr. Barrett was assistant engineer on the Chicago, Burlington & Quincy, being identified with double tracking work in the state of Iowa. Later he became associated with Fairbanks, Morse & Company as civil engineer, handling the construction of locomotive coaling stations and other railroad structures. In 1904 he became associated with Roberts & Schaefer Company, later becoming vice-president and director, which position he holds at the present time.

John J. Roberts treasurer of the Roberts & Schaefer Company, and of the Bush, Roberts & Schaefer Company, received his education at the University of Illinois. In 1893 he entered construction work, acting in various capacities on bridge building construction and on other projects until 1901.

At this time he was appointed chief estimator for Henry W. Schlueter Company, Chicago, and continued in that capacity until October, 1902, when he became assistant chief estimator of the George A. Fuller Company, with headquarters at New York City. At the time of the formation of the Roberts, Schaefer & Company, Mr. Roberts became one of the original co-partners. When that company was incorporated in September of the same year, Mr. Roberts became secretary and treasurer of the corporation. He relinquished the position of secretary in 1917 but has continued as treasurer of the corporation.

Frank E. Mueller, secretary of the Roberts & Schaefer Company and also secretary of the new corporation, graduated from Purdue University, Lafayette, Ind., in 1900, and in 1901 received a mechanical engineer's degree at that institution. In July, 1901, Mr. Mueller became associated with the

Link Belt Machinery Company, Chicago, as a draftsman and after serving in that capacity for several months was promoted to assistant to J. V. Schaefer, who at that time was a salesman. In February, 1904, he left the Link Belt Machinery Company with Mr. Schaefer, who, with Colonel Warren R. Roberts, John J. Roberts and Mr. Mueller, formed the co-partnership of Roberts, Schaefer & Company. Mr. Mueller was appointed general superintendent of the new organization and in September, 1904, when the co-partnership was incorporated under the name of Roberts & Schaefer Company, he was appointed general superintendent and chief engineer. In addition Mr. Mueller was later appointed secretary and a director of the company.

Clyde P. Ross, contracting manager of the Roberts & Schaefer Company and a director of the new organization, graduated from the Chicago Manual Training School in 1898. He became connected with the engineering department of the Link Belt Company, Chicago, where he was engaged in the designing of coal washing plants, coal mining plants and various types of elevating and conveying machinery for the handling of coal. In March, 1904, when the Roberts, Schaefer & Company was organized, one of the original organizers, Mr. Schaefer, placed Mr. Ross in charge of design as chief draftsman. He held this position until 1907, when he was promoted to the position of principal assistant engineer. In 1909 he was elected a director of the Roberts & Schaefer Company.

### National Steel Car Company Changes Hands

Robert J. Magor and associates have bought the plant and property, and taken over the assets and liabilities of the National Steel Car Company, of Hamilton, Canada, and will

continue the business under the name of the National Steel Car Corporation with a capital of 100,000 shares of no par value stock.

The plans of the new corporation are to substantially increase its freight car manufacturing facilities and also develop on a large scale the motor truck business, which in the old company was only carried on in a very small way.

Mr. Magor, who is president of the Magor Car Corporation, New York, engaged in the car building business, has been elected presi-



R. J. Magor

dent also of the new corporation. He was born on July 6, 1882, at Montreal, Canada, was educated in high schools and also received private tuition. In November, 1905, he entered the car building business with the Canadian Car & Foundry Company and in June, 1910, left the service of that company to take over the management of the re-organized Magor Car Company plant at Passaic, N. J. Since Mr. Magor took over the management of this plant the production has been increased ten times, and extensions are now being made, to be completed in the early spring, that will double the present capacity of the plant. In 1912 Mr. Magor assisted in designing the plant of the National Steel Car Company, Hamilton, Canada, and two years later was elected to the board. In the early part of 1919 he was made consulting vice-president, and as the company sustained large losses on a French war contract it was necessary to reorganize it, additional capital being put in. This was done by submitting to the company a proposition of purchase during November which was accepted, and on December 18, 1919, the purchase was completed and Mr. Magor was elected president of the National Steel Car Corporation, Ltd.



## Financial and Construction

### Railway Financial News

**LEHIGH VALLEY.**—Col. George T. Slade, former vice-president in charge of operation of the Northern Pacific, and during the war director of railroads behind the lines in France, has been elected a director of the Lehigh Valley.

**CAROLINA, CLINCHFIELD & OHIO.**—This company has proposed to the holders of its \$6,000,000 5 per cent Elkhorn first mortgage gold notes, due January 1, 1920, the extension of the notes for two years to January 1, 1922, at interest increased to 6 per cent, holders to be paid in consideration of the extension \$20 bonus for each \$1,000 note.

**NEVADA COUNTY NARROW GAGE.**—This company has applied to the Railroad Commission of California for authority to redeem \$83,000 par value of its 7 per cent bonds by the issuance of 5 per cent 30-year bonds. In June, 1913, the commission authorized the company to issue bonds to the extent of \$500,000. It was the intention of the company to use \$162,000 of these bonds to redeem outstanding bonds, and this was done to the extent of \$83,000. The recent application is to secure permission to redeem these bonds.

### Railway Construction

**LOUISIANA & NORTHWEST.**—This road, according to George W. Hunter, receiver, is locating and will build a new branch line at a point two miles north of Homer, La., into the oil fields west of Homer. The main spur will be between five and six miles in length with sidings for the various oil producers, the total mileage aggregating approximately 12 miles. In addition to the construction of this new branch the existing line will be improved to enable it to handle increased traffic from the oil fields.

**SALT LAKE & DENVER RAILROAD COMPANY.**—This company has been incorporated at Salt Lake, Utah, with a capital of \$500,000, for the purpose of constructing a railroad through the Uintah basin, Utah. The articles of incorporation provide for the construction of a railroad from near Provo, Utah, to Craig, Colo., where it will connect with the Denver & Salt Lake. Governor Simon Bamberger of Utah is the chief promoter of the road and president of the new company. The plans for the financing of the road call for the issuing and selling of \$10,000,000 of 7 per cent preferred stock in the Utah-Colorado Industrial Corporation, which is to be incorporated under the laws of Delaware, which corporation will hold the entire stock of the Salt Lake & Denver Railroad Company. The capital stock of the railroad company is divided into \$100 shares, and the eleven directors each hold 10 shares, in addition to which Governor Bamberger holds 400 shares as trustee. Application has also been filed with the Public Utilities Commission of Utah for a certificate of public convenience and necessity. The incorporators are Governor Bamberger, president; W. S. McCormick, J. R. Walker and E. E. Jenkins, vice-presidents; Lester C. Freed, treasurer, and W. W. Armstrong, John P. Howard, E. A. Culbertson, James W. Collins, Frank Pingree and E. O. Howard, additional directors. O. J. Grimes, secretary to the governor, has been appointed secretary of the railroad company, and Governor Bamberger is named as general manager of the road, in addition to the presidency.

The route of the proposed railroad will be an easterly direction from Provo, through Wasatch, Duchesne and Uintah counties, and thence northeasterly through Rio Blanco county, Colo., to Craig, a distance of approximately 310 miles. The line has been located by survey and is subject to only minor changes, to be made as required by construction. The articles state that the company will commence construction "as soon as it conveniently can be begun, weather conditions permitting, subject, however, to obtaining the consent of the Public Utilities Commission of Utah.

## Railway Officers

### Railroad Administration

#### Operating

**P. L. Clarity**, trainmaster of the Great Northern, has been appointed superintendent of terminals, succeeding **J. McNaught**, appointed trainmaster.

**P. D. Shand**, trainmaster of the Denver & Rio Grande, at Pueblo, Colo., has been transferred to the Salt Lake division, with headquarters at Provo, Utah, succeeding **E. K. Merkle**, transferred.

**J. C. Goodfellow**, trainmaster of the Southern Pacific at Los Angeles, Cal., has been transferred to Niland, Cal., succeeding **R. E. Southworth**, who has resigned. **C. M. Murphy**, trainmaster at San Luis Obispo, Cal., has been transferred to succeed Mr. Goodfellow.

**H. T. Wyatt**, chief clerk to the federal manager of the Baltimore & Ohio Western Lines, with headquarters at Cincinnati, Ohio, has been appointed train master of the Newark division, with headquarters at Newark, Ohio, succeeding **W. Streck**, who has been assigned to other duties.

**Byron J. Peaseley**, whose appointment as superintendent of motive power of the Vicksburg, Shreveport & Pacific, the Alabama & Vicksburg and the Mississippi-Louisiana Transfer was announced in the *Railway Age* of October 3 (delayed issue, printed Nov. 19), page 719, was born at Decorra, Ill., December 21, 1867. He attended the public schools at Burlington, Iowa, and in 1883 began work as a laborer and machinist's apprentice for the Chicago, Burlington & Quincy at West Burlington. His railroad work was then interrupted temporarily while he attended a business school which he left to go to the Atchison, Topeka & Santa Fe as machinist at Fort Madison, Ia., where he remained until 1894, when he entered the employ of the Fort Madison Gas & Gasoline Engine Company. For almost four years subsequent to this period he was a fireman and engineer and then went to the Illinois Central as machinist at East St. Louis, Ill., from which city he was transferred to Carbondale as division and wrecking foreman. Later Mr. Peaseley was with the Denver & Rio Grande as foreman at Helper, Utah, but returned to the Illinois Central at East St. Louis to serve respectively as roundhouse foreman, shop foreman and general foreman until September, 1906, when he left to become general foreman of the Missouri Pacific at Bixby, Ill. While in that position he was promoted to master mechanic at Ferriday, La., and was, six months later, transferred to the Missouri division with headquarters at De Soto, Mo. In February, 1914, he was promoted to superintendent of shops at Argentina, Ark., and later appointed master mechanic of the roads of which he is now superintendent of motive power.

#### Financial, Legal and Accounting

**John W. Mulligan**, assistant real estate and tax agent of the Chicago, Rock Island & Pacific, with headquarters at Chicago, has been promoted to real estate and tax commissioner, succeeding **Thomas J. Newkirk**, deceased.

**C. H. Nero** has been appointed auditor of passenger receipts of the New York, New Haven & Hartford and other roads under the jurisdiction of Edward J. Pearson, federal manager, succeeding **H. S. Snow**, assigned to other duties.

#### Engineering and Rolling Stock

**N. P. White**, roundhouse foreman of the Northern Pacific at Duluth, Minn., has been promoted to master mechanic of the Minnesota division at Staples, Minn., succeeding **William Radke**, deceased.

**C. H. Koyl**, engineer of water service of the Great Northern at St. Paul, Minn., has been appointed to the newly created position of engineer of water service on the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, Ill.

**Luke J. Gallagher**, locomotive engineer, has been promoted to road foreman of engines of the Rocky Mountain division of the Northern Pacific, with headquarters at Missoula, Mont., succeeding **H. E. Day**, who has been granted leave of absence.

**A. M. Davidson**, assistant engineer on the Baltimore & Ohio, Western Lines, with headquarters at Cincinnati, Ohio, has been promoted to assistant division engineer, with the same headquarters, succeeding **L. A. Robenheiser**, who has been transferred.

**C. H. Judson**, assistant valuation engineer of the New York Central, Lines West of Buffalo, at Cleveland, Ohio, has been appointed assistant engineer in charge of the work in connection with Valuation Order No. 3 for the lines West of Buffalo, with the same headquarters.

**F. C. Moeller**, roundhouse foreman of the Chicago, Rock Island & Pacific, at Blue Island, Ill., has been promoted to general foreman in the locomotive department at Cedar Rapids, Iowa, succeeding **S. C. Mueller**, whose promotion to master mechanic was announced in the *Railway Age* of December 26.

**J. A. Marshall**, road foreman of engines of the Northern Pacific, at Duluth, Minn., has been appointed acting master mechanic of the Lake Superior division, with the same headquarters, succeeding **J. E. Goodman**, who has been given a temporary leave of absence. **C. P. Cunliff**, engineman, has been promoted to succeed Mr. Marshall.

#### Purchasing

**F. E. Johnson**, storekeeper of the Baltimore & Ohio at Mt. Clare, Baltimore, Md., has been appointed assistant general storekeeper at Baltimore; **H. Shoemaker**, district storekeeper of the Northwest District, with headquarters at Cleveland, Ohio, has been appointed Mr. Johnson's successor and Mr. Shoemaker has been succeeded by **J. G. Calori**.

#### Corporate

##### Executive, Financial, Legal and Accounting

**E. H. Boles**, general counsel of the Lehigh Valley with headquarters at New York City, has also been elected vice-president.

**R. W. Harrington** has been appointed to the newly created position of general attorney of the Canadian National with headquarters at Vancouver.

**F. W. Charske**, assistant to the president of the Union Pacific, with headquarters at New York City, has been appointed controller of the Union Pacific, the Oregon Short Line and the Oregon-Washington Railroad & Navigation Company, with the same headquarters.

**E. O. Griffith** has been reinstated as assistant to the president of the St. Louis, Southwestern Railway Company and the St. Louis Southwestern Railway Company of Texas, with headquarters in the Railway Exchange building, St. Louis, Mo. Mr. Griffin will have charge of purchases, materials and supplies.

**Peter F. Finnegan**, traffic manager of the Baltimore & Ohio, Western Lines, with headquarters at Cincinnati, Ohio, has resigned to accept the vice-presidency of the Union Tank Car Company, New York city, with headquarters at that city. Mr. Finnegan was born at Syracuse, Ind., on November 4, 1877. He received his education at the Chicago Business College, and entered railway service on May 4, 1895, in the transportation department of the Baltimore & Ohio at South Chicago, Ill. From January to December, 1899, he was connected with the Pullman Company, returning to the Baltimore & Ohio in 1900 as chief clerk in the general freight de-

partment at Chicago. Later he was appointed general freight and passenger agent of the Baltimore & Ohio Chicago Terminal, a position which he held until 1916, when he was promoted to general western freight agent with the same headquarters. Later his jurisdiction was extended to include the Northwest district. In 1917 he was appointed assistant to the director of the division of traffic of the United States Railroad Administration, with headquarters at Washington, D. C., holding that position until November, 1918, when he was appointed freight traffic manager of the Baltimore & Ohio, Western Lines.

#### Traffic

**Frank W. Robinson**, traffic manager of the Oregon-Washington Railroad & Navigation Lines, with headquarters at Portland, Ore., has been appointed traffic manager of the Union Pacific System, the position he held prior to government control. The appointment is effective March 1.

**Archibald Fries**, traffic manager of the Baltimore & Ohio and other roads under the direction of C. W. Galloway, federal manager, has resigned from federal service and has been appointed general traffic manager of the Baltimore & Ohio, with headquarters at Baltimore, Md. **M. Golder Shumate** has been appointed acting traffic manager under the Railroad Administration, succeeding Mr. Fries.

#### Obituary

**Mahlon D. Miller**, superintendent of the New York, New Haven & Hartford at Waterbury, Conn., died January 5, at his home in that city.

**Clarence Farleigh Parker**, formerly vice-president of the Illinois Central and the Central of Georgia, with headquarters at Chicago, died at his home in Chicago January 6, after an

illness lasting three years and which necessitated his retirement from active work in 1917. Mr. Parker was born at Charleston, Ill., on February 14, 1865, and received his education at Washington University, St. Louis, Mo. His railroad work began in 1888, when he entered the employ of the St. Louis, Alton & Terre Haute, his duties at that time being mainly confined to the train service departments. From then until January 1, 1896, he was consecutively car accountant, secretary to



C. F. Parker

the general manager and purchasing agent and assistant general manager and purchasing agent of the same road. On January 1, 1896, he was appointed general manager and remained in that position until April 1 of the same year when he went to the Illinois Central as general agent at St. Louis, Mo. (From this time until his retirement in 1917, Mr. Parker continued in the service of the Illinois Central.) On May 12, 1902, he was appointed coal traffic manager and filled that position until June 1, 1904, when he was appointed purchasing agent, in which capacity he became well known to many central western railroad and railway supply men. His successful supervision over the Illinois Central's purchases during the period from June 1, 1904 to January 17, 1912, led to his appointment as vice-president on the latter date. As vice-president Mr. Parker retained supervision over the purchasing departments. On April 8, 1912, he was also appointed vice-president of the Central of Georgia and executed the duties of that position, in addition to those of vice-president of the Illinois Central, until the time of his retirement.